LAND USE IMPACTS AND POLICY INCOHERENCE OF SMALL-SCALE UTILITY RENEWABLE POWER: SASKPOWER'S POWER GENERATION PARTNER PROGRAM

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Abstract

Introduction and Research Questions

Renewable energy development has reached critical interest internationally, and each jurisdiction must manage development appropriately based on their own specific policy realities. Many countries have pursued renewable energy development at the community level and pursued private or cooperative models of developing and managing renewable energy systems. Within the Canadian context, each province is responsible for creating and distributing energy to its citizens, and many provinces still have Crown corporations that exclusively manage all aspects of energy development and transmission. In Saskatchewan, SaskPower, the provincial Crown Corporation has developed the Power Generation Partner Program (PGPP) to engage communities and the private sector in small scale utility renewable energy production (up to 1 MW) to be purchased by SaskPower. The introduction of this program has an impact on various policies, programs and plans, but particularly impacts land use planning within the province. Renewable energy production is an emerging land use in Saskatchewan that is competition with other established uses of land, such as agriculture, residential uses and other existing extraction industries. Permitting of this form of land use mostly falls to local governments. Because the PGPP is being presented on behalf of SaskPower as an opportunity to communities, the community-level effects of this development present questions pertaining to the motivations for communities to pursue this form of development, and the appropriateness of existing land use policies in place to accommodate this new land use.

Using existing land use planning documents as a guide, this research explores how Saskatchewan communities might pursue renewable energy development and inform how these developments might be reviewed based on the existing provincial and community land use planning legislative context. This exploratory research asks the following questions: Why might a community wish to participate in the PGPP? To what extent might policy incoherence and layering within the context of land use planning policy impact PGPP applications as an emerging type of land development? And, how might land use planning documents at the local community level impact PGPP applications?

Research Objectives and Methods

This research explores the specific Saskatchewan context of renewable energy development and land use planning, particularly the role of SaskPower, a provincial Crown corporation with a monopoly over electricity generation, transmission, and distribution in most parts of Saskatchewan. The objective of this research is to outline SaskPower's PGPP and explore how its introduction might interact with the existing land use planning framework and policy context. This was tested by examining both provincial and local land use planning legislation and documents to understand the broad land use policy goals that a community has for future development, and understand the regulatory context that might affect the inclusion of this form of development. The interconnected nature of policy problems like sustainability, energy production and land use planning are understudied. Examining how these existing and emerging policies interact or conflict is a key objective of this research.

A qualitative research methodology was used to approach the research questions and objectives. Three primary approaches were used in this research. First, a literature review of existing provincial land use planning policy and legislation was conducted; then, two types of document review were executed. A thematic analysis of land use policy documents was

undertaken to investigate the development values and goals of the studied communities, and a word search analysis of these documents identified potential land use conflicts in existing community land use planning documents. Four representative communities that could potentially be involved in the PGPP were selected for the word search document analysis. This strategy permitted a deeper analysis of the current state of land use planning specific to each community that may impact future renewable energy development.

Findings and Conclusions

Key findings of the research pertain to the current state of readiness for renewable energy development by specific communities. While provincial governments have some goals for land use planning to which municipalities must adhere, municipalities can have differing values and regulatory guidelines that can impact future development specific to their community. First Nations communities can have similar land use planning documents, but their creation is subject to federal legislation and therefore has a different context than municipalities governed under provincial legislation.

Results of the thematic document review presented two general themes found within Official Community Plan documents. Future planning statements identified by each community in the form of 'values' or general development 'goals' had a strong overall emphasis on economic development and environmental sustainability, regardless of the community. The word search document analysis found that there was an overall lack of consideration for renewable energy development as a central factor in plans regarding future land use. Of the communities studied, only the Town of Kindersley had made specific land use expectations for renewable energy development clear within their land use planning documents. Other communities studied mentioned solar panels as an accessory use, or had vague definitions of what constitutes a 'utility', but overall provided very little direction for siting or defining renewable energy development as a permitted, prohibited, or discretionary use and under which zoning district this may be appropriate. There are also valid community concerns for potential land use conflicts, particularly for emerging land uses that are in competition with established land uses within the province, such as agricultural uses.

Overall, proposals for renewable energy development are largely subject to the judgement of local administration in the absence of clear guidelines and direction for renewable energy development stated in land use planning documents, specifically in Zoning Bylaws or Land Use Laws.

The concepts of policy layering and policy coherence are explored in this research to determine if the existing land use context exhibits these phenomena. Initial review of the provincial land use policy context appeared to demonstrate policy incoherence and policy layering. Policy incoherence as outlined by Howlett (2009) outlines that policy coherence happens when policy goals are appropriate and support the objectives, settings and instrument choices. Policy incoherence occurs where there is tension between these elements. Evidence of incoherence was initially observed through additions to provincial legislation such as the inclusion of the *Statements of Provincial Interest* as an attempt to consolidate provincial land use planning goals across communities. These guidelines were added to the existing provincial policy context, without the necessary regulatory instruments in place to assert these new land use planning goals. The concept of policy layering as outlined by Rayner and Howlett explains policy layering as a phenomenon where policy changes from additions to policies are made without altering older elements that existed before. It tends to occur because the entrenched

interests of these older elements do not permit new elements, and will defend the older elements of policy that benefited them. While it may be true that policy additions were made to the land use planning context in Saskatchewan without altering the existing elements, there was little evidence to demonstrate that entrenched interests were involved to defend older elements of policy. As a result, this study concludes that the land use context exhibits qualities of policy incoherence, but not necessarily policy layering.

The link between renewable energy development and land use planning has not been clearly established within Saskatchewan, particularly now that development is open to communities and the private sector, instead of being solely developed by SaskPower. The addition of the PGPP without acknowledging the existing land use planning policy context creates a situation where those interested in pursuing renewable energy development as a community or a private corporation to sell to SaskPower are faced with an incoherent land use policy context that is difficult to navigate.

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Dedication

Dedicated to my parents, who have provided endless support in all my pursuits (academic and otherwise); Bryn, for being a highlight in yet more university adventures, and to my husband Dustin, for suggesting we get married in 2019 and not 2020.

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List of Abbreviations

- CCS – Carbon Capture and Storage technology
- "Community" – This thesis has defined 'community' as groups with governance legislation under the *Planning & Development Act*, or First Nations governed by the *Indian Act* and the *First Nations Land Management Act*. The research focuses on these types of communities, but acknowledges that other groups such as non-profits, businesses and cooperatives may be interested in participation of the SaskPower PGPP and will have to adhere to the same land use planning rules for renewable energy development.
- Crown Corporation – A government-owned and operated corporation
- kW – kilowatt
- MT – megatonne
- MW – megawatt (measure of power)
- MWh – megawatt-hour
- NERC – North American Electric Reliability Corporation
- OCP – Official Community Plan
- PDA – Planning & Development Act, 2007
- PGPP – Program offered by provincial Crown utility SaskPower. "Power Generation Partner Program" designed to permit private development of energy, including some renewable energy options to be purchased by SaskPower. Each individual renewable energy project has a cap of 1MW.
- PV – photovoltaic
- RE – renewable energy. This research is focused on the two most prevalent forms of renewable energy in the province: wind and solar power production. While wind is not currently offered in the PGPP, it is still included for discussion within this research. Therefore, more focus has been placed on solar development because of the parameters set by the PGPP.
- SaskPower – Saskatchewan Power Corporation. The crown utility responsible for all aspects of electricity production and distribution within Saskatchewan.
- SERA
- Small-scale utility power production – defined in this research as renewable energy projects that are between 100kW to 1MW total alternating current nameplate capacity. This is consistent with the program parameters and energy production maximum set by SaskPower in the PGPP.
- Utility-scale renewable energy definitions can vary, but most share the similarity of holding a power purchase agreement (PPA) with a utility for the sale of power
- SPI – the Statements of Provincial Interest, 2014
- ZB – Zoning Bylaw

Chapter 1: Introduction

1.1 Research Context

Renewable energy production has reached a crucial level of interest in Canada because of international commitments such as the Paris Accord and in the United Nation's Sustainable Development Goals (Government of Canada, 2017). A recent dire warning from the United Nations Intergovernmental Panel on Climate Change (IPCC) has outlined the risks associated with rapid global warming beyond 1.5 Degrees Celsius (IPCC, 2018). As a result, policy-makers have been challenged to search for and implement renewable energy solutions. Canada and the provinces have begun to prioritize renewable energy goals at the national and provincial level, but energy policy creation and implementation remains the responsibility of the provinces (Macdonald, Donato-Woodger, & Hostetter, 2015).

Within Canada, provincial policies will be key to advancing all scales of renewable energy development, but the development of these policies occurs under an ever-evolving and increasingly challenging context. In terms of renewable energy options, small power production policies have emerged in Saskatchewan in the form of small power producer policies, rebates, net metering policies, and other related policies as offered by the provincial Crown Corporation, the Saskatchewan Power Corporation (SaskPower). Saskatchewan has pledged to increase the renewable energy portfolio to 50% capacity by 2030 (SaskPower, 2016) and has provided policies and incentives to generate small scale utility and individual development of renewable energy sources. To encourage more development of renewable energy in the province, SaskPower has introduced programs to purchase power from independent power producers, and has presented this program as a potential opportunity for communities and businesses to enter into the market as a power producer (SaskPower, 2018).

The SaskPower Power Generation Partner Program 2018 (PGPP) is meant to allow such opportunities for small-scale utility renewable energy production up to one Megawatt (MW). This program allows for approved generation technologies to connect with SaskPower's grid system for the purpose of delivering all of the electrical energy they generate to SaskPower at a negotiated price. This provides independent power producers the opportunity to provide up to 1MW of renewable power to be purchased at a steady rate by SaskPower (SaskPower, 2019) while adding to the available renewable energy sources outside of those already owned by SaskPower. This program may assist SaskPower to meet their 50% renewable energy capacity target and lessen the investment required to develop its own new renewable power facilities by 2030.

Renewable energy is an emerging land use in competition for ever-limited land area. Because it is a new form of land use, permitting of this use will almost exclusively fall on local governments. The feasibility of realizing this program at the municipal and First Nations community level depends on understanding any potential legislative barriers that may affect uptake of these policies and incentives, particularly those pertaining to land uses at the provincial and local level. Navigating the existing legislative context becomes more difficult as a result of policy incoherence, and perhaps policy layering, processes within the provincial land use context of Saskatchewan. This research explores this provincial policy context, and how it may affect renewable energy developments and land use planning implications.

Because renewable energy development is land intensive, there may be existing legislative land use barriers that might affect community-level uptake and implementation of these policies. As a result, existing provincial and local area planning legislation and policies may struggle to adequately adjudicate this quickly evolving land use. Therefore, land use policy at the provincial and municipal level will be key in determining exactly where these utility-scale renewable energy production facilities can be located within the province.

1.2 Research Goals, Objectives and Questions

The objective of this research is to outline SaskPower's PGPP and explore how its introduction might interact with the existing land use planning framework and policy context. This research aims to illuminate the under-studied area of renewable energy development as a land use, and the legislative opportunities and barriers that may exist in implementing small-scale utility power producing developments. The concepts of policy layering and incoherence will be explored to understand how these phenomena may affect the emergence of renewable energy development within this context.

Because the PGPP is being presented on behalf of SaskPower as an opportunity to communities, the community-level effects of this development present questions pertaining to the motivations for communities to pursue this form of development, and the appropriateness of existing land use policies in place to accommodate this new land use. Using existing land use planning documents as a guide, this research explores how Saskatchewan communities might pursue renewable energy development, and inform how these developments might be reviewed based on the existing provincial and community land use planning legislative context. Studying this in the context of Saskatchewan is timely since reliance on non-renewable energy sources is the highest there among all other provinces, and land use policies serve a small but widely dispersed population. (National Energy Board, 2016).

1.2.1 Research Question

The research can therefore be framed by the following exploratory questions: has the PGPP been introduced with consideration of the existing land use planning framework and policy context? To what extent might policy layering within the context of land use planning policy impact PGPP applications as an emerging type of land development? How might existing land use planning documents at the local level impact PGPP applications?

1.3 Research Methods

To accomplish the research goals, objectives and questions, various qualitative methods have been selected. This includes document review of both provincial and local land use planning legislation and documents to understand a community's broad policy goals for future development within a community, and the regulatory context that might affect inclusion of these developments. The research also employs content analysis and case study analysis in order to capture the legislative context at the community level.

1.4 Organization of Thesis

Pertinent background and academic context are presented in subsequent chapters. Chapter Two introduces the policy context for the research problem including the concept of policy layering and incoherence. Chapter Three outlines the federal and provincial energy distribution context to frame the emergence of renewable energy development within the province of

Saskatchewan, and the role of the provincial utility in the creation of renewable energy policy and the PGPP in particular. Chapter Four provides information on the provincial land use planning context and the role of municipalities and First Nations in land use planning policy and decision-making. Chapter Five introduces the emerging policy issue of renewable energy developments and their pressures on existing established land uses in competition for available land. A fulsome review of the research methods and approach used to inform research findings can be found in Chapter Six. Finally, the findings of document analysis and thematic analysis of land use planning policy documents for specific communities in the research study area are introduced in Chapter Seven.

Chapter 2: Multi-level Governance and Policy Incoherence

2.1 Introduction

As governments create and implement public policies, the decision-making context of these policy decisions is becoming more complex as conflicting values and goals emerge. The growing complexity of both problems and instruments used by successive governments can result in a conflicting and incoherent policy context that can be difficult for local government to navigate. Within Saskatchewan, the interconnected nature of policy problems like sustainability, energy production and land use planning have not been uniformly addressed and have contributed to policies that are inconsistent within and across these policy areas.

2.2 Policy Change

Policy paradigms can help explain the context of informing both the goals and instruments used to address a certain policy problem. Peter Hall's research into policy paradigms has contributed to explaining how institutions can change over time. In his research, Hall describes a policy paradigm as "a framework of ideas and standards that specifies not only the goals of policy and kind of instruments that can be used to attain them, but also the very nature of the problems they are meant to be addressing" (Hall P. A., 1993, p. 279). It is therefore important to recognize the existence of policy paradigms and how they can affect policy change.

Policy changes can occur for many reasons, and can typically range between incremental or radical changes, where incrementalism demonstrates marginal shifts from the status quo and radical change reflects a paradigmatic change (Howlett & Mukherjee, 2018; Lindblom, 1979; Hall P. A., 1993; Breznitz & Ornston, 2013). It is assumed that existing policies must be no longer capable of achieving their intended outcome in the face of an exogenous shock or change and that policy adaptations are required to correct this policy to obtain the desired outcome. Policy layering can occur at these junctures when piecemeal additions or omissions of individual policy instruments occur within existing policy mixes. (Howlett & Mukherjee, 2018; Béland, 2007).

Alternatively, policy conversion means the introduction of new goals or actors that can alter the institution's core objectives (Béland, 2007). This analysis provides a critique of the punctuated equilibrium theory where exogenous shocks cause path-departing changes to institutions after long periods of stability. Policy analysis and examining change within institutions have become useful theoretical tools as policy scholars work to better understand the phenomenon of change over time. In particular, Kathleen Thelen's *How Institutions Evolve* presents a compelling theory of institutional change (Thelen, 2004). She presents concepts of 'policy layering' and 'policy conversion' as the two main mechanisms of change. Policy layering is described as "the grafting of new elements onto an otherwise stable institutional framework" in a way that can "alter the overall trajectory of an institution's development" through the introduction of these new elements (Thelen, 2004, p. 35).

Thelen argues that while punctuated equilibrium may occur, policy change can occur beyond these moments, and that endogenous mechanisms of change may be more important to explain these policy changes (Thelen, 2004). Often, these efforts to tweak existing policies can result in suboptimal outcomes when policy instruments and policy goals are misaligned as a result of this layering process (Howlett & Rayner, 2007).

Hacker has used the concepts introduced by Thelen's research and further provided another concept in addition to policy layering and conversion called 'policy drift'. This mechanism occurs when changes happen slowly that transform the core meaning of existing institutional arrangements (Hacker J. S., 2004). Hacker's argument reiterates the fact that substantial reforms might not always be the result of a sudden exogenous shock, but can occur slowly over time. Béland furthers the work of Thelen and Hacker to introduce the concept that institutional change must consider policy paradigms of actors' beliefs and assumptions (Béland, 2007). While ideas may not be the sole component of explaining institutional change, Béland argues that ideas should at least be recognized as a potential component that can explain the drive of processes such as conversion, layering and policy drift.

Hall explains institutions within historical institutionalism as formal or informal procedures, routines, norms and conventions embedded in the organizational structure of the polity or political economy (Hall P. , 1996). Essentially, institutions are organizations that have rules or conventions necessary for formal organization. Through this logic, land use planning can be interpreted as an institution because of its legislation, standards, and processes necessary for the implementation of its goals.

Government is a key actor creating and implementing land use policies, and the Government of Saskatchewan does take part in this policymaking process. Provincial and municipal governments mostly work in tandem to organize land uses and provide future policy direction, but public advocacy groups can have a great impact at either level of government. Municipalities and their citizens can also have a direct voice as their input is an important part of municipal planning processes. Most municipal land use decisions can be appealed at the local and then provincial level before a final decision is made (Government of Saskatchewan, 2016).

Land use policies can be convoluted since multiple governments with differing values will often work to update policy based on their immediate interests, leading to a patchwork of policy (Rayner & Howlett, 2009). This phenomenon is not specific to land use policy, and has been identified by Kathleen Thelen (Thelen, 2003) and Jacob Hacker (Hacker J. , 2005) as a "policy layering" process occurring within institutions. Rayner and Needham (2009) criticize the lack of integration of Saskatchewan's land use planning regime, particularly in regards to the forestry industry. According to Rayner and Needham, the context of land use at that time was one of incoherence, with a disorganized policy mix. Proposed forestry expansions contributed to additional interest in land use planning as a means of achieving both forestry expansion and First Nations employment, but the failure of the forestry expansion meant that many of these land use planning attempt became redundant (Rayner & Howlett, 2009). As a result, successive governments have made small changes to the existing provincial planning policy mix, but these changes have not resulted in a cohesive provincial strategy, and therefore a disorganized policy mix remains. As industries and land uses continue to evolve and emerge, the land use policy context has not adapted to change. A lack of consistency of the regime as a whole contributes to unpredictable land use policy outcomes (Rayner & Needham, 2009) and does not meet the needs of evolving land uses.

Saskatchewan has made some effort to move away from this incoherent land use policy mix, with changes providing a more consistent set of policy goals in provincial legislation. The most recent review of the *Planning & Development Act* (PDA) sought to better co-ordinate the programs and policies and reinforce municipal authority of land use planning provincially (Rayner & Needham, 2009). The updated *The Statements of Provincial Interest* document came into effect in 2012 with the goal of providing guidance to municipalities on land use planning

issues in order to "facilitate the development of vibrant, safe, self-reliant and sustainable municipalities" (Government of Saskatchewan, 2019). These documents work in tandem to set a cohesive direction for all land use planning across all sizes of municipalities in the province. *The Statements of Provincial Interest* document includes a variety of topics broadly pertaining to land use planning, and appears to attempt to fill gaps in previous land use planning. This includes broad topics of sustainability and sustainable growth, as well as encouraging the creation of First Nations in land use plans. *The Statements of Provincial Interest* document aims for better alignment between existing plans and policies, stating that its purpose is to "align provincial and municipal planning objectives to facilitate orderly development that is beneficial to communities" which is also stated again as a Planning Principle (Government of Saskatchewan, 2012).

While some changes have been observed within land use planning within Saskatchewan, understanding the scope of these changes is challenging, and incoherence is observable. Land Use Planning within Saskatchewan, as an institution, has stable processes, policies and actors. Established interests that exist within the province include resource extraction and agricultural industries, which both are embedded within the land use planning policy context. Agriculture, forestry and mining all are impacted by land use planning. Satisfying their interests is central to existing policy, and these interests are included in land use planning legislation and policy goals.

Additions to land use policy have been consolidated over the years, including the addition of *The Statements of Provincial Interest* in 2012. This document was meant to consolidate the goals of land use in the province and provide direction for these decisions. However, this document has some conflicting goals, and likely does more to further establish the dominance of existing industries such as agriculture in land use planning in the province. Goals pertaining to resource development and agriculture remain a strong component of this document. As a result, the policy goals in *The Statements of Provincial Interest,* and the policy instruments like local land use plans and administrative review mechanisms pertaining to these industries are consistent. This consistency works in favour of existing industries that dominate land uses in the province, but may not be useful as modern land uses emerge and are competing amongst other uses.

Renewable energy is one such industry that faces a complicated land use planning context to navigate, particularly since this context has been created and curated with other competing interests in mind. While *The Statements of Provincial Interest* also make an effort to include sustainability and conservation of biodiversity and natural ecosystems as overarching goals of provincial land use planning, there is very little in terms of instruments that support either of these goals. As a result, any changes that have occurred in land use planning likely have resulted from endogenous changes and introducing alterations to the existing policy. These additions of environmental sustainability, without appropriate instruments to implement these ideas, results in an outcome where these goals are present in name only within land use plans.

While there is some evidence of policy layering occurring within the institution of land use planning, there is also additional evidence that instead suggests that the institution of land use planning in Saskatchewan lacks vertical integration between different layers of government.

2.3 Policy Incoherence and Policy Layering

The concept of policy layering is best understood within the context of policy mixes – combinations of policy goals, instruments settings used to address a particular issue. Policy design is all about the effort to match goals and instruments within and across categories, and

Howlett has argued the design and instrument selection of policy mixes exist within a "multi-level, nested phenomena" (Howlett, 2009, p. 74). A policy mix is therefore created as emerging goals, instruments and settings are added into an existing policy context. If policy goals are consistent with the choice of objectives, settings and the logic of instrument choice, policy coherence has been achieved. Alternatively, policy incoherence may occur if there are contradictions between those elements (Martens, McNutt, & Rayner, 2015). The outcomes of incoherence, inconsistency and incongruence as a result of policy layering where new elements are added to the mix without altering the existing policy context. This phenomenon has been explained by Martens, McNutt & Rayner as a process that occurs because "entrenched interests that benefit from these older elements defend them; the policy mix then builds up over successive rounds of decision making like sedimented geological strata" (Martens, McNutt, & Rayner, 2015, p. 5).

Coordination and coherence are essential for navigating the complicated provincial energy and land use context, particularly for communities interested in pursuing renewable energy development. The introduction of new policies can happen suddenly, but there are also gradual policy shifts across years and decades. Policy layering occurs when new policies are introduced without altering the context in which they are introduced. Currently, those interested in developing renewable energy projects must navigate an incoherent context between municipal, provincial and federal legislation in order to pursue a successful development. SaskPower has presented an opportunity for communities to develop renewable energy projects, but this addition may be encumbered by an existing land use planning legislative context that is unsuitable to manage this emerging land use.

The addition of these legislative documents does not necessarily solve the incoherent policy mix problem observed by Rayner and Needham in 2009, before changes were made to land use planning in Saskatchewan. Updating the PDA in 2007 and adding additional planning goals through *The Statements of Provincial Interest* in 2014 does not constitute a full shift in the goals and existing system for land use planning within the province. Instead, adding these documents, without additional changes to the existing land use planning context, initially appears to have resulted in a policy layering process, but because established interests are not observed to have actively protected the existing policies that benefited them, the result may be more accurately described as increased policy incoherence.

The following chapters will outline the provincial context of renewable energy and land use planning efforts in Saskatchewan, and how the existing policy context interacts with emerging renewable energy production development by SaskPower, and the introduction of the PGPP. Particular note will be made of any evidence of policy incoherence and layering observed within the broad policy context of energy and land use planning within the province. The outcome of this incoherence results in a confusing context for those interested in pursuing participation in this program.

Chapter 3: Federal and Provincial Energy Authority - Background

3.1 Introduction

Since it has been generally accepted that energy production and consumption play a key role in emissions (Bruckner, et al., 2018), more effort has been made on behalf of governments to regulate energy development and work towards including renewable energy into the capacity mix. Renewable energy production has therefore become an area of focus in order to meet international targets for reducing emissions. Canada has its own unique challenges in introducing renewable energy policies and programs since each province is responsible for its own energy development and servicing, and each municipality is then responsible for administering land uses. This chapter will outline the current state of energy distribution within Saskatchewan and the emergence of renewable energy policies on behalf of the provincial utility SaskPower. Finally, the Small Power Producer Program (PGPP) created by SaskPower will be introduced.

3.2 Canadian Federalism and Provincial Energy Policy Context

Altering the proportion of renewable energy sources is determined by how electricity production is regulated nationally and provincially. Canada and the provinces have begun to set renewable energy goals at the national and provincial level, but energy policy creation and implementation remains the responsibility of the provinces because of federalism (Macdonald, Donato-Woodger, & Hostetter, 2015). The Canadian constitution grants control over energy to provincial governments, but federal and local governments can also influence the policy context of energy development and decision-making (OECD, 2012; Moore, 2015). Local governments are then responsible for spatial planning of land use which can impact the location and intensity of energy installations (Richardson & Otero, 2012). All jurisdictions therefore contribute to current energy policies and program context.

The provision of electricity has largely been under public control at the individual provincial level in Canada. The Canadian constitution regulates authority between federal and provincial governments to provide electric power generation, transmission and exports. The *Canadian Environmental Assessment Act, 2012* regulates the construction, expansion of large fossil fuel plants, tidal power facilities and large dams, and provides federal regulation for these projects, but there is no federal mechanism for the federal government to contribute to overall system planning at the federal level (Valiante, 2013; *Canadian Environmental Assessment Act, 2012*). Technological limitations on electricity storage mean that each province must execute careful system planning to ensure that electricity needs are met at all times. As a result, most provinces operate at a level of excess capacity to meet provincial demand (Government of Canada, 2019).

There have been attempts to develop and regulate a national power grid to better serve electricity supply between provinces, which was first attempted by the federal government led by Diefenbaker in the 1950s (Valiante, 2013). The National Energy Board (NEB) was then created in 1959 to regulate oil, gas and electricity exports within Canada (Government of Canada, 2019). Attempts to develop a cohesive power grid or energy policy at the national scale have been unsuccessful to date (Skinner, 2018).

Crown corporation monopolies have meanwhile led to insular provincial electricity industries. Technological limitations in electricity transmission have limited the spatial distances possible for power transportation, which has led to an intra-provincial industry, where each provinces' power industry has developed independently from one another (Valiante, 2013). Provinces with vertically integrated market models have Crown corporations operate as the principal entities to dominate all phases of electricity provision services, and own and operate the majority of their jurisdiction's generation, transmission and distribution assets (Christian & Shipley, 2019). In addition to Saskatchewan, the provinces of British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, and Quebec all use the Crown corporation monopoly model. Alberta represents the opposite extreme where the electricity sector is rooted in market competition (Jahangir, 2011). The remaining provinces operate between these two extremes.

3.3 Federal interest in Renewable Energy Goals and Conflict with provinces

There has been renewed focus on reducing greenhouse gas (GHG) emissions nationally, and the federal government has focused on the energy sector and how it can contribute to reducing emissions. The federal government signed the Paris Agreement in April of 2016, which has obligated Canada to commit to do its part in keeping global temperature rise well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius in a transparent way (The United Nations, 2019). As a result, some federal initiatives have been introduced to reduce emissions related to provincially-run energy production. For example, traditional coal-fired generation units have been regulated to be phased out by 2030. This regulation has a large effect on Saskatchewan because of its reliance on coal as a source of energy. Further to the phase-out of coal-fired electricity, the Pan-Canadian Framework on Clean Growth and Climate change was released by the federal government as a means of reducing emissions and, ideally, growing the Canadian economy. The Pan-Canadian Framework is best known for introducing carbon pricing in all provinces, but it is much broader. In addition to carbon pricing, the Framework focuses on energy production and encourages the development of renewable energy and innovation in energy technologies. This commitment includes goals to phase out traditional coal-fired electricity by 2030; setting performance standards for natural gas-fired electricity generation; investing in clean energy; investing in transmission lines between and within provinces and territories; investing in 'smart grid' technologies; and working in partnership with northern, remote and Indigenous communities to reduce their reliance on diesel (Government of Canada, 2016).

The Pan-Canadian Framework on Clean Growth and Climate Change has since faced several legal challenges from provinces. While pollutant emission regulations for power generation facilities have been largely organized and regulated by provincial governments, the federal government has argued their own jurisdiction over this, which has led to recent court challenges. The Saskatchewan provincial government legally challenged the federal government's *Greenhouse Gas Pollution Pricing Act* which implements a carbon tax for provinces that have not determined their own carbon pricing structure. The Court of Appeal for Saskatchewan heard arguments in May 2019, and found that the Act is a constitutionally valid exercise of federal authority (Christian & Shipley, 2019). The Province of Ontario faced similar legal outcomes when filing their own challenge against the federal government and were also unsuccessful. The Province of Alberta has also made a similar challenge in February of 2020 where the Alberta Court of Appeal found that the federal carbon tax was unconstitutional (Giovannetti, 2020). Although these decisions will be appealed to the Supreme Court of Canada,

these recent legal decisions have impacted the relationship between provincial and federal governments, and have brought energy-related policy decisions into the forefront of intergovernmental relations. This federal framework will likely continue to affect provincial decision-making, particularly in regards to energy production, since it affects provinces, like Saskatchewan, that rely heavily on non-renewable sources of energy.

3.4 Electricity Generation and Transmission in Saskatchewan

Saskatchewan has an extensive transmission and distribution network. Existing transmission lines transmit power to the province's population across a landmass of approximately 650,000km. As the Crown corporation with a monopoly over all electricity generation, transmission and distribution in the province, SaskPower controls one of the most dispersed electricity services in the world, with high maintenance costs associated with providing this service to the province. Saskatchewan is associated with the North American Bulk Electric System (BES) as a member of the Midwest ISO, and meets North American Electric Reliability Corporation (NERC) standards. Regulatory compliance with the NERC standards is overseen by the Saskatchewan Electric Reliability Authority (SERA) since 2010 at the approval of the SaskPower Board (Natural Resources Canada, 2016).

SaskPower was created by the Rural Electrification Act of 1949 (Champ, 2001). As a utility owned by the provincial government through its holding company (the Crown Investments Corporation), SaskPower has the exclusive right to supply electricity within the province (Crown Investments Corporation of Saskatchewan, 2019). The Saskatchewan Rate Review Panel reviews rate proposals by SaskPower and provides opportunity for public questions and comments before reporting to the provincial government with recommendations on electricity rate changes. SaskPower holds the exclusive franchise within the province for the transmission and distribution of power within the province as established by the Power Corporation Act. Two municipal franchises exist within the province in the City of Saskatoon and the City of Swift Current where power is purchased in bulk from SaskPower and then distributed locally. One wholly-owned subsidiary of SaskPower operates to manage trading of electricity with other utilities and also administers access to the SaskPower transmission system. Finally, several major independent power producers operate within the province to sell bulk power from gas, wind and waste heat under long-term power purchase agreements. These include Northland Power, TransAlta, ATCO, Algonquin, Suncor/Enbridge and NRGreen (Natural Resources Canada, 2016).

3.5 Provincial Electricity Consumption Trends

Diversification of Saskatchewan's power supply has been partly influenced by exogenous pressures for sustainability and political commitments to create competitive advantage through value chains (Hurlbert, McNutt, & Rayner, 2010) and as a result of falling costs associated with renewable energy power generation. As a result, a goal has been set by the utility to meet a target of 50 percent energy capacity within the province by 2030 (SaskPower, 2016). Growing public pressure for developing renewable energy sources within the province has led to disruption of the electricity utility, pressuring the provincial government and SaskPower to develop policies and initiatives that support renewable energy options at the utility and household level, while still balancing its position as an electrical utility in the business of selling electricity.

The transition of energy systems, including the integration of renewable energy resources, involves a long and complex process and multiple actors (Stafford and Wilson, 2016). This transition includes both technological and cultural change, including change in the relationship between electric utilities and their customers. Despite a relatively static provincial population, energy consumption has been steadily increasing within the province. End-use demand in Saskatchewan was 660 Petajoules (PJ) in 2016, with industrial energy demand being the largest sector at 58 percent of total demand. Electricity-only consumption per capita was 20.0 megawatt hours (MWh) and the province ranked second in Canada for per capita electricity consumption, nearly 34 percent more than the national average (Government of Canada, 2019). This increased demand has been demonstrated by power usage records. New peak records have been consistently set yearly since 2007 (Global News, 2016). Because the majority of electricity generation within the province is generated by burning coal, there has been increased scrutiny towards the greenhouse-gas emissions generated from electricity generation. The province's GHG emissions in 2016 were 78 Megatonnes (MT) of carbon dioxide equivalent, which have increased by 71 percent since 1990, and by 14 percent between 2005 and 2017 (Government of Canada, 2019). Compared to other Canadian provinces, Saskatchewan's electricity sector produces the second highest quantity of GHG emissions (Government of Canada, 2019).

3.6 Renewable Energy Policy Context in Saskatchewan

Saskatchewan's policy context for energy production and the recent efforts to include renewable energy sources to the energy mix have occurred with little consideration for how this emerging land use will interact with an existing land use planning context at the provincial and community-scale. Saskatchewan is one of the largest provincial emitters in Canada on a per capita basis (Boothe & Boudreault, 2016) but emissions regulations are still underdeveloped at the provincial level. Instead, political discussions on climate change have largely focused on the economy and job prospects. Significant progress was made in 2010, when a provincial climate change strategy was being developed and legislation was passed regulating GHG emissions, pursuant to the *Management and Reduction of Greenhouse Gases and Adaptation to Climate Change Act* ("Sask CC Act") (Bill 126, 2010). This Act was passed and received royal assent, but was never proclaimed or pursued further (Harper, et al., 2016). This Act would have required the province to make changes to its energy portfolio, since the primary source of electricity within the province is derived from non-renewable sources (SaskPower, 2019). Efforts to reduce the emissions of coal-fired electricity generation in the province led to a focus on the development of carbon capture and storage (CCS) technology to retrofit existing coal-fired generation facilities owned by SaskPower, including the Boundary Dam Integrated CCS Project ("ICCS Project") (SaskPower, 2015).

Policies and programs that support renewable energy development within the province have been developed within a specific political landscape. The province has historically been a two-party system, and the NDP is the current official opposition party. The Saskatchewan Party (Sask. Party) is a self-identified conservative, centre-right political party that has held a majority government since November 2007 (Saskatoon StarPhoenix, 2016) and is currently led by Premier Scott Moe (Government of Saskatchewan, 2019). Because SaskPower operates as an agent of the Crown, it has statutory power for all aspects of electricity generation in Saskatchewan (SaskPower, 2018). Similar to Alberta, BC and Newfoundland, Saskatchewan has been part of a trend to move towards consolidated environmental policy-making authority in

energy and resource-oriented agencies which has resulted in policy inaction on the cumulative effects of energy production (Carter, et al., 2017; Olive, et al., 2018).

The legacy of policy layering and policy incoherence, inconsistency and incongruence within Saskatchewan's power generation context have been established (Martens, McNutt, & Rayner, 2015). Current policy efforts on behalf of the Saskatchewan Party (Sask. Party) have further established this phenomenon. Messaging from the Sask. Party has remained consistent since 2016 in regards to energy priorities within the province, focusing predominantly on the economic opportunities and strengths of the province. While the targets for meeting 50% renewable energy capacity in province by 2030 are mentioned, the focus typically remains on the potential impacts on individual SaskPower customers, businesses and communities that might benefit from innovation and development of this sector (The Saskatchewan Party, 2016). The current government of Saskatchewan has therefore begun to shift policies towards renewable energy development, but these new policies and efforts on behalf of provincial government and the province's main crown utility, SaskPower, are communicated in a way that is consistent with the industry-friendly values of the Sask. Party. The overall direction towards renewable energy development has not been fully outlined by SaskPower, but some wind and solar projects have been developed by the utility. In general, research has outlined that the electricity sector already exhibits path-dependency towards certain renewable energy technologies and this trend could affect future choices and successful projects (Valiante, 2013). Because of the current ad-hoc nature of renewable energy development within the province, it is unclear whether this trend will occur.

3.7 Renewable Energy Production and Emissions Reduction in Saskatchewan

A focus on renewable energy has led to a growing popularity for renewable sources of energy at the utility and smaller community or individual scale of development. The transition has been supported by growing popularity of small-scale solar photovoltaic power generation at the household level, and through growing national and international pressure to shift energy generation from non-renewable to renewable energy sources (*The Economist*, 2017). This transition has also been observed within private industry as well, with the world's largest publicly traded oil company Shell announcing in 2017 that it would be investing $1 billion annually in renewable energy by 2020 while also divesting all of its Canadian oil sands assets (Reuters, 2017). These changes have begun to disrupt the role of conventional utilities in renewable energy transition. Since renewable energy sources such as solar photovoltaic installations have become increasingly common and affordable globally, this has begun to challenge the role of utility providers (Graffy & Kihm, 2014).

In order to mitigate the overall emissions from coal-fired electricity generation, SaskPower has introduced retrofits to existing coal-fired electricity generation stations. In 2014, 120 MW of electricity capacity at the Boundary Dam station was retrofitted with CCS technology that aims to reduce carbon dioxide emissions by 1MT per year (Government of Canada, 2019). The effects of this technology are disputed, and sustained technology delays and failures have resulted in the projects not meeting expected targets, and resulting in SaskPower announcing that no further expansion of CCS technology is planned for the province (Taylor, 2019; Fraser, 2018).

Saskatchewan has seen evidence of an energy transition as pressure for renewable energy production has increased. Between 2005 and 2014, about 22% of electricity in Saskatchewan was produced from renewable resources, which was predominantly hydroelectric generation

(Government of Canada, 2018). While coal remains the most important source of power generation, recent changes have allowed for renewable sources of energy to take up more space within the province's energy capacity mix. This shift began in 2006 with a 150 MW facility development under the provincial Green Power Portfolio program for wind generation, and between 2010 and 2015, independent power producers have built three additional wind farms through requests for proposals (RFP) processes by SaskPower (Government of Canada, 2018)

3.7.1 SaskPower Renewable Energy Policy Goals, Programs and Risks

In Saskatchewan, reliance on non-renewable energy sources is the highest among the provinces (National Energy Board, 2016). The Saskatchewan government has publicly stated their support for developing provincial renewable energy, but on their own terms. Dustin Duncan, Saskatchewan's Minister of Environment and Minister Responsible for SaskPower has made public comments supporting Saskatchewan's comprehensive climate change strategy that includes increasing renewable power generation (Canada NewsWire, 2018). Saskatchewan has pledged to increase the renewable energy portfolio to 50% capacity by 2030 (SaskPower, 2016) and has provided policies and incentives to generate development of renewable energy sources. In terms of renewable energy options, both small scale household and utility-scale development in renewable energy has been developed within a relatively short amount of time. At the utility scale, similar shifts towards wind energy has been developed on behalf of SaskPower, and the utility has also created renewable energy opportunities for household and small-scale utility production as well.

Small-scale power production policies have emerged in Saskatchewan in the form of small power producer policies, rebates, net metering policies, and other related policies. As a result, purchasing renewable energy from small-scale producers has been presented by SaskPower as a potential opportunity for individuals and municipalities (SaskPower, 2018). Specific programs developed by SaskPower include the *SaskPower Power Generation Partner Program* 2018 (PGPP) which replaces the previous *Small Power Producers* program and the *Flare Gas Power Generation Program*. This is a two-year program with the option to extend to three years which allows customers to develop 'power generation projects' to sell electricity to SaskPower Power generation and is expected to add 70-105 MW of power into the provincial grid (SaskPower, 2018). To provide context, SaskPower reported a provincial power generating capacity of 4,493 MW in 2017-2018, and produced a total of 25.5 Terawatt hours (TWh) of electricity in 2017 with coal and gas comprising of 34% and 40% of the total available generating capacity (SaskPower, 2018).

Saskatchewan's recent efforts to include renewable energy policies and programs are based on existing international efforts and pressure to shift electricity sources away from non-renewable sources. The United States has a similar federal structure to Canada in that states are largely responsible for creating and implementing renewable energy portfolio standards (RPSs).[1] The provincial government also carefully studied successful European renewable energy policies and governance, and developed methodological approaches to study the energy governance systems required in order for a state to attain national or regional goals for renewable energy transformation (Pruditsch, 2017).

There are potential risks associated with increasing the proportion of individual self-generated renewable energy initiatives for utility companies. As interest in renewable energy

[1] American state-level policies are similar, including feed-in tariffs, net metering and rebates for the installation of grid interconnection for renewable energy (Schelly, 2015).

increases at the individual level, revenues for utility companies can decrease, and rates may raise for existing non-renewable consumers. This tension can be observed with changes to SaskPower's Net Metering program. The utility was met with hostility after it suspended its net metering program after reaching its 16 MW capacity two years ahead of schedule. A revamped version of the program was unveiled by the utility in November of 2019, but it no longer offers rebates on capital equipment and installations (SaskPower, 2019). Additionally, the new program only offers a 7.5 cent/kWh against the customer's energy charge, which is about half of the previous policy had paid to customer-generated power under the previous net-metering program (Hunter, 2019). The government had announced that this new program would still help it achieve its goal of 50 per cent renewables by 2030, but that the original net-metering program had a negative impact on the utility's bottom line. Minister for SaskPower Dustin Duncan was quoted as saying that "while large-utility-scale projects are by far the most economical way to add renewable energy to the grid, net metering will remain another tool in the toolbox as SaskPower works to meet its target of reducing greenhouse gases…" (SaskPower, 2019). It is unclear whether large changes will be introduced for the separate PGPP, but disruptive changes to existing programs are unlikely to cultivate trust in SaskPower by those interested in developing renewable energy.

3.7.2 SaskPower and Private Partnerships

SaskPower has made efforts to develop renewable energy as a corporation. The target of reaching 50 percent power generation capacity from renewable sources by 2030 means that the corporation must add renewable sources of energy into its energy mix to meet this goal. Currently, the corporation manages the development and transmission of power through a variety of ownership models. This can range from a facility that is wholly owned and operated by the corporation to an independent power producer wholly owning and operating a facility and selling to SaskPower pursuant to a power purchase agreement (Masich, 2016). Electrical generation from independent power producers, power purchase agreements or public-private partnerships require approval from either: competitive procurement initiated by SaskPower; unsolicited single source procurement initiated by an independent power producer; or the First Nations Power Authority (Masich, 2016). SaskPower has demonstrated a trend towards contractual partnerships with the private sector in order to meet renewable energy generation. SaskPower has engaged independent power producers to generate and supply renewable source energy, including wind power facilities (Masich, 2016).

The corporation has reported that in the long term, addition of renewable sources will likely aim to include the addition of: 1,600MW of wind-based energy; 300MW of hydro-based energy; and 100 to 300 MW of solar, biomass and other renewable sources of energy by 2030 (SaskPower, 2017). In order to include these energy source goals by 2030, the corporation has included opportunities for self-generation, opportunities for public-private partnerships, and entering into agreements with independent power producers. There have been several projects where SaskPower has engaged independent renewable source energy, including the Sunbridge Wind Power Facility and the Red Lily Wind Power Facility (SaskPower, 2019). The private sector will therefore likely continue to play a pivotal role in meeting renewable energy goals set by the corporation. Since 2016, the total available generation capacity of wind reported by SaskPower has increased slightly, from 221MW to 241MW in 2019 (SaskPower, 2019) but wind energy developed by the utility has remained constant during this time, whereas wind energy purchased from independent power producers has increased from 60MW to 80MW. Energy

listed as unspecified 'various' sources has also increased from 27MW of total available generation capacity in 2016 to 32 MW in 2019 while 100% of these sources comes from Small Independent Power Producers (SaskPower, 2017; 2018; 2019). The PGPP has been presented by the utility as a potential opportunity for communities, and the utility has demonstrated an interest in engaging the private sector for renewable energy development.

3.8 First Nations Involvement in SaskPower Renewable Energy Procurement

SaskPower started an Aboriginal procurement initiative in 2015, which provides policy direction for the corporation to commit to procure goods and services from Indigenous vendors in Saskatchewan. The policy is meant to promote positive relations with Indigenous peoples, communities and businesses while involving them in economic opportunities and growth. It also set goals for the corporation to consider the role of Indigenous business entities in future procurement opportunities for power generation and transmission projects (Saskatchewan Power Corporation, 2015). As a result of this policy, First Nations have had the opportunity for active involvement in power generation projects within the province. The legislative framework that may affect First Nations pursuing independent power generation projects is different than the provincial legislative context. This is particularly apparent where a First Nation intends to develop a power facility on lands administered by the Nation.

First Nations land is either governed by the Indian Act, or the First Nations Land Management Act.[2] A First Nation that is a signatory to the First Nation Land Management Act can immediately engage in a project, subject to the First Nation's individual Land Code (Masich, 2016). If a First Nation is still governed solely by the Indian Act, it can be more difficult to participate, since Ministerial approvals are required for this type of development. This could lead to a slower approval process but does not necessarily mean that development is impossible. There is significant emphasis on First Nations' inclusion within the PGPP. The Aboriginal Procurement Initiative has opened the door for partnerships with First Nations and power development, but the PGPP specifically has built First Nations prominently into the eligibility requirements of participation in the PGPP. First Nations are prioritized within the selection criteria of the program as described below.

3.9 SaskPower Power Generation Partner Program Overview

As discussed above, several programs have been created to allow for individual scale customer generation and larger scale independent power producers outside of utility corporation development in Saskatchewan. The PGPP was first presented in 2018 and accepted the first round of applicants to the program in November of that year. It was created to support the generation of electricity for direct sale back to SaskPower[3].

There are many sources of energy that are eligible for the program and include renewable and carbon-neutral energy sources. Renewable energy sources eligible for the PGPP include

[2] For more detailed information about the First Nations Land Management Act see Section 4.3.1 A visual interpretation of this is Act can be found in Figure 2.

[3] This is different from other individual customer-scale forms of development such as the addition of solar panels on a home. Household production of renewable energy is possible in another program offered by SaskPower, but a critical difference is in both the scale of energy production and use. The Net Metering program operates at an individual household customer scale, where users can get a credit for excess power they produce, but do not directly sell power to SaskPower. Alternatively, the PGPP requires that all power generated must be directly sold to SaskPower.

solar, low-impact hydro, biomass/biogas and geothermal. Carbon neutral sources that are acceptable for program eligibility include flare gas and waste heat recovery (SaskPower, 2018). Wind energy is not eligible for this program. The program has set out some additional eligibility requirements for prospective applicants. Applicants must be either an existing SaskPower customer; a First Nation (or First Nations); or a corporation, partnership, cooperative or non-profit entity where at least 80% of the shares are owned by either SaskPower customers and/or a First Nation. The emphasis on First Nations in eligibility is an interesting aspect of this program and is based on the corporation's commitment to the inclusion of First Nations communities within their procurement processes as stated within the 2015 Aboriginal Procurement Policy (Saskatchewan Power Corporation, 2015).

Renewable energy generation applications have some additional selection criteria that must be met by the applicants. The program has set a yearly cap on renewable energy projects of 10 MW in total. Each individual renewable energy project has a cap of 1 MW. There are also location constraints that can impact eligibility. Projects interconnecting to a Priority 1 Feeder – Planned Substation[4], called Priority 1 Projects, have priority over other applications. This is followed by Priority 2 Feeder (Priority 2 Projects) which are further selected based on Bid Price. Priority 3 Feeder projects are only available if the Program caps are not met through applications for Priority 1 and 2 Projects. There are other eligibility requirements that pertain to location and site control, pricing considerations and project size. Location and Site Control are important aspects of this program.

Projects located within the City of Saskatoon and the City of Swift Current are not eligible because they are not located within SaskPower's franchise area, as both Saskatoon and Swift Current operate municipal electricity utilities. Projects must also demonstrate that they will "not jeopardize native plants, wildlife, or their habitats" and applications may be rejected if they have actual, apparent or deemed risk of negative environmental impact (SaskPower, 2018). Other relevant documentation must demonstrate that the applicant has obtained the right to use the Project location and that the applicant is "required to obtain and maintain all permits for the Project to the extent required under applicable laws" (SaskPower, 2018). Successful bids must sign a contract with SaskPower for a term of 20 years. Because this is not a tender call SaskPower outlines explicitly that the utility is not legally obligated to review, assess, evaluate, accept or reject any application, and that the utility incurs no liability of any nature or kind to any person in connection with the Program (SaskPower, 2018). [5]

3.10 Land Use and the Power Generation Partner Program

Both First Nations and other Saskatchewan communities have their own community-developed land use documents that are important to consider for renewable energy production as a land use. As stated above, First Nations that are governed by the *First Nations Land Management Act* have the ability to make land use decisions based on Land Use Codes developed by the community. They do not require land use decisions to be approved at the Federal Ministerial level, and therefore may have more flexibility to develop renewable energy

[4] SaskPower has provided a list of distribution feeders that have the highest priority for PGPP project interconnection. Feeders have been ranked by priority from 1-3 in order to best serve existing infrastructure and planned future substations (SaskPower, 2018). This map can be found in Appendix 3.

[5] Applicants for the PGPP can apply to the program once the program application window has opened. Successful projects will be chosen based on the eligibility criteria posted, but SaskPower is not obligated to treat PGPP applicants as they would a formal tender call for utility generation applicants (SaskPower, 2018).

projects on parcels of land if their Land Use documents are permissive of this form of development. For municipalities in Saskatchewan, *The Planning & Development Act, 2007* permits municipalities to create Official Community Plans and Zoning Bylaws to administer their own land development, subject to other provincial legislation. SaskPower has stipulated that each applicant must acquire municipal approval for all renewable energy projects. This information is located in all public documents regarding the PGPP. This is often the last requirement stated, but it may be the largest obstacle, depending on both the application scope and the specific land use regulations stipulated by each individual community.

Some municipalities have provided direction for the development of land for renewable energy production within their land use planning documents. In these cases, it is common for a municipality to list these uses as 'discretionary' within a specific zoning district, sometimes within agriculturally-zoned parcels of land. This means that in addition to the general application requirements for development, these projects must also be approved by Council after public participation proceedings, where public approval may be required. Further siting requirements pertaining to setbacks, height restrictions and other site-specific provisions may also affect the realities of a renewable energy project. Therefore, a critical component of approvals for the PGPP and renewable energy development in general, relies heavily on the specific administrative and regulatory land use planning provisions set by the First Nation or municipality. These crucial land use considerations are explored in further detail in Chapter Four below.

Chapter 4: Land Use Policy Legislative Context

4.1 Introduction

Any form of energy development requires some amount of land area and intensity of use. It is important to consider the land-intensive nature of certain forms of renewable energy production in order to consider their feasibility for development. Saskatchewan has a surplus of land, but some types of land development have historically been more prevalent than others. In particular, agriculture is the dominant land use within the southern portion of the province. Therefore, applicable land use legislation and policies are necessary to review in order to determine the viability of a new intensive land use to enter the competitive mix. Saskatchewan has historically had incohesive land use policies focused on furthering provincial economic interests and assuming minimal conflict at the local level. Recent attempts to integrate provincial land use policies have occurred as pressure increases to meet pressing environmental goals and ensure First Nations involvement. Land use policy must encompass the interrelated interests and actors involved, each with differing values associated with the management and uses of land.

Saskatchewan's large land area of 652,284km² and comparatively small and spatially sporadic population of just over one million (Government of Saskatchewan, 2017) is spread across 781 incorporated municipalities of varying sizes (Hall & Olfert, 2015). Spatial distance coupled with a low population has led to land use policies which have focused on province-specific industries, and have only recently begun to incorporate environmental elements and to include First Nations communities. This chapter explores the context of land use planning within the province and the many ideas and interests that have shaped it.

4.2 Land Use Policy Overview

4.2.1 Federal context

The provincial responsibility for land-use planning is rooted in the *British North America Act of 1867*, and more recently entrenched in the *Constitution Act of 1982* (Provincial Archives of Saskatchewan, 2011). The provinces have full autonomy over land use planning, but the federal government can plan for land uses directly under its control, including national waterways, parks, and First Nations reserves. Other than these areas under direct control, the federal government can attempt to influence the goals and policy direction of provincial or municipal land use, but only through targeted programmes and financial support directed at provinces and municipalities (OECD, 2017). As a result, there are no national level plans in place to consolidate land use planning goals and objectives.

4.2.2 Provincial Land Use Legislation

Saskatchewan, like other Canadian provinces, has full autonomy over land-use planning, with the exception of areas already under the purview of the federal government. Dominant industries like agriculture, forestry, and resource development have greatly influenced provincial land use policies. Agriculture has perhaps had the most obvious effect to land use, since early Dominion Government surveys of the 1870s designated land in a grid system to facilitate agricultural expansion and ownership (Provincial Archives of Saskatchewan, 2011). Measuring

legal land area in terms of Townships has persisted in the southern portion of the province to the present day, while much of the land in northern Saskatchewan remains un-surveyed (ISC, 2019).

The provincial government is responsible for creating provincial acts that govern land use policy direction and goals. Current policies aim to achieve: integration of environmental, social and economic values; conflict resolution; building common land use objectives; and openness and inclusiveness (Government of Saskatchewan, 2019). The most important provincial Acts pertaining to Land Use include: *The Planning and Development Act, 2007* (PDA), which establishes planning and land use authority in Saskatchewan (Statutes of Saskatchewan, 2018) and *The Statements of Provincial Interest*, which establishes guidelines for provincial land priorities across twelve broad categories (Government of Saskatchewan, 2012). All proposed municipal land use plans such as Official Community Plans and accompanying Zoning Bylaws must adhere to *The Statements of Provincial Interest* and the PDA.

4.2.3 Renewable Energy and *The Planning & Development Act, 2007*

Land Use Planning policy document creation is typically under the direction of a registered professional regional and urban planner. The regulatory documents created under the supervision of planners can typically involve Official Community Plans (OCPs) and corresponding Zoning Bylaws. Generally, planning practices as implied by the PDA must consider the suitability of land for an intended use; the compatibility of an intended use with neighbouring land and existing or planned land uses; the long term local and regional implications of land use decisions; incorporating various planning approaches to sustain the financial and environmental well-being of municipalities and the province for the long term; and exploring technically sound, innovative solutions to development challenges (Saskatchewan Ministry of Municipal Affairs, 2012). The PDA generally recommends that municipalities "[c]onsider opportunities for the incorporation of regional energy production and public works" and states that planning documents "should consider the opportunities and approval criteria for regional and local energy production, such as solar energy or wind power generation; support regional energy production projects; include appropriate zoning to accommodate regional energy production projects; and consider the effects of climate change and the inherent benefits of producing local, cleaner energy" (Saskatchewan Ministry of Municipal Affairs, 2012). However, it is difficult to know if this has occurred without carefully studying the land use planning documents of each individual municipality across the province.[6]

4.2.4 Municipal Plans & Future Development

Local municipal governments and policy decisions across Canada are largely limited in policymaking by provincial governments and legislation. Because of this relationship, municipalities are often referred to as "creatures of the province." However, one area where municipal administration acts as a regulatory authority is in land use planning and zoning. Because of the actors within and across levels of government that are involved in land use regulation, this context has been characterized as a polycentric system (Goldthau A. , 2014).

While the provincial government determines much of the overall land-use planning policy goals and strategic direction through provincial Acts such as the PDA, municipalities are

[6] It is also interesting to note that at the time of this update in legislation in 2012, few opportunities were available for communities to participate in renewable energy production or partner with the provincial crown SaskPower.

responsible for administering land use decisions at the local level. Municipalities are therefore authorized to establish zoning bylaws, require development permits, servicing agreements, or development levies to manage land use, development, infrastructure and community growth issues generally (Government of Saskatchewan, 2016). Through the Act, urban, rural and northern municipal councils are granted authority to establish land use planning and development authority, typically through the use of an OCP and zoning bylaw. Public engagement is a pivotal process in creating new official community plans and zoning bylaws. The OCP document is meant to capture the vision of a community based on this public engagement process, and use that vision to inform the scope and scale of future development within that community. As a result, it is a critical policy document that can clearly outline the values of an individual community, and consider existing land uses such as existing prevalent industries and residential form. The community can then use this information to inform future land uses and intensities of use that are specific to their community's context, vision and values.

These documents are meant to enforce land use decisions, reduce potential for land use conflicts between differing uses of land, all while informing and engaging local residents about how council intends to direct and manage current and future community needs. These bylaws also clarify a community's vision and goals for investors, residents and even the Crown, which is also bound by municipal bylaws under section 5 of the PDA (Government of Saskatchewan, 2016). Therefore, the Crown must obtain a development permit from the municipality if they are interested in pursuing development within the legal boundaries of a municipality.

Generally, community-scale land use planning documents are meant to meet specific higher-level municipal policy goals as well as regulatory direction to accomplish these goals. As a result, OCPs and zoning bylaws are often created concurrently to provide both the future strategic goals of a community and the site-specific rules and administrative procedures to implement these goals. OCP documents typically provide high-level policy goals, set visions statements for future development of the community, and outline the specific values and ideologies that matter most to the community members now and into the future. The Zoning Bylaw provides the realistic rules that must be in place in order to execute the vision and policy goals of the OCP. This is typically a detail-oriented regulatory document, which sets forth very site-specific goals of where specific development can take place, at what intensity of use, and any other required rules such as setback requirements, height restrictions, and application requirements.

For most communities with an OCP and corresponding Zoning Bylaw, proposed developments are reviewed by administration using these documents as a legal guide. For most development of sites, a development permit is required. This means that each municipality must set clear rules and expectations for future development sites and establish a plan for future growth and appropriate uses for each area, which is typically determined by establishing specific 'zones' for uses. As a result, uses are typically outlined as 'permitted', 'discretionary', or 'prohibited' based on the Zoning Bylaw. Permitted uses may be reviewed and approved by administration as long as certain application and site criteria are met. Prohibited uses may not be reviewed or approved by administration unless a proposal for the re-zoning of a parcel is made. The speed at which these applications are resolved depends on the local administration for each municipality. Finally, discretionary use applications must be deliberated by Council, and there is no guarantee that the proposal will be approved. In these cases, Council must also review the OCP and weigh those considerations with the proposed application for its suitability at a given location. Administrative and Council decisions rely on the provisions set forth within existing

land use planning documents, which is why they are incredibly important tools in determining future development and industry within a community.

Similar to OCP and Zoning Bylaw documents, land use planning documents within First Nations communities are also essential in outlining the goals and aspirations of a community, as well as providing the specific rules that are established by each land use.

4.2.5 Coherence and Conflict in Provincial Land Use Policy

Within the context of land use, there are potential conflicts between differing values that can inform how land is used or developed. These values can be in opposition with one another, particularly between sustainability and economic development priorities. Land use planning is meant to balance the trade-offs between sustainability and economic development outcomes, but is not immune to conflict that can occur when stakeholders and citizens from diverse backgrounds are involved.

The Government of Saskatchewan's land use planning decisions were primarily driven by economic development pressures in the past, particularly in decisions pertaining to Saskatchewan's Crown lands (Government of Saskatchewan, 2013). Since most renewable energy systems involve some form of land use, the potential for competition and value-conflict of uses is an important consideration (Konadu, et al., 2015).

Motives for land use change and development can be influenced by a variety of factors. Physical attributes of land are influential in this process, such as the biophysical attributes such as altitude, slope and soil type (Veldkamp & Lambin, 2001). The incorporation of socio-economic drivers of change are also an important component in understanding and predicting land use changes (Wilbanks & Kates, 1999; Veldkamp & Lambin, 2001). Finally, the impact of policies can also influence land use changes, and the response to economic opportunities, as mediated by institutional factors, can drive these changes (Lambin, et al., 2001). For example, international climate agreements such as the Paris Agreement can affect land use change as a global force that influences national and local markets and policies. In general, provincial policies have not always able to meet increasingly more complicated land use demands from multiple groups without triggering some form of conflict (Government of Saskatchewan, 2013). This is especially true when newer land uses are emerging and existing policies are not able to adequately manage these uses or the potential conflicts that they may influence.

4.2.6 How Renewable Energy Fits in the Existing Provincial Land Use Planning Context

Renewable energy development is not specifically mentioned within *The Statements of Provincial Interest* document. The Statement pertaining to 'Public Works' in Section 6.8 of the legislation outlines that the province has an interest in safe, healthy, reliable and cost-effective public works to facilitate economic growth and community development, and mentions that public works interests, planning documents and decisions shall "consider opportunities for the incorporation of regional energy production and public works" (Government of Saskatchewan, 2012). The planning principles outlined in this document make special mention of "Comprehensive and Sustainable" planning that "requires land use plans and development decisions to consider economic, social, cultural and environmental needs of communities and regions for present and future generations" but does not necessarily reference how renewable energy development might specifically be handled within the creation of local planning documents.

Wildlife and habitats have legislative protection through a combination of provincial and federal legislation within Saskatchewan. Large-scale renewable energy production proposals must meet these legislative protections, which are outlined in the *Environmental Management and Protection Act, 2010, The Environmental Assessment Act*, the *Wildlife Habitat Protection Act*, *The Water Security Agency Act* and the federal *Species at Risk Act*, the *Canadian Environmental Protection Act*, the *Fisheries Act*, and the *Migratory Birds Convention Act* (Saskatchewan Ministry of Environment, 2016). There have been attempts to create provincial legislative policies to direct the development of renewable energy projects within Saskatchewan. This includes the *Wildlife Siting Guidelines for Saskatchewan Wind Energy Projects* released in 2016. This document focuses largely on ensuring compliance with applicable provincial and federal policies to ensure wildlife and habitat protection. Provisions for solar development or other forms of renewable energy do not have similar siting suggestions at the provincial policy level. All renewable energy developments proposed in association with SaskPower's PGPP would require an environmental impact assessment to identify and characterize potential environmental impacts that may occur as a result of the project, but this review is limited to the risks to wildlife and their habitats according to the legislation outlined above.

Conflicts can exist between different groups based on differing values associated with land uses. Agricultural industries and environmental groups can often be at odds due to the intensive nature of the industry and its encroachment into native prairie grasslands (Prairie Conservation Action Plan, 2019). Additionally, conflicts can exist where local municipalities are pitted against agricultural industry and environmentalists alike as proposed development sprawls into municipal peripheries (Hoffman, 2001). Conflicts between development proposals and individuals are typically referred to as 'NIMBYism' (Not In My Backyard) (Fast, 2014). This can apply on a larger scale if individuals, First Nations communities, or citizen advocacy groups are unhappy with provincial resource development and environmental impact assessment processes (Mandryk, 2016).

4.3 First Nations Involvement in Provincial Land Use Processes

While land development is a relatively clear process within Saskatchewan's municipalities (see Section 4.2.4, above), it is more convoluted within a First Nations context. Land use and land development processes have historically been at odds with First Nations communities, particularly in regards to treaty rights and unresolved land claims. Treaty rights are recognized as a component of the province's overarching resource management plan, and this is guided by the Constitution Act (1982), the Natural Resources Transfer Agreement (1930) and associated court decisions (Government of Saskatchewan, 2018). There are currently 70 First Nations within the province and the spatial boundaries of the province include the territories of Treaties 2, 4, 5, 6, 8 and 10, and encompass 782 reserves, settlements and villages (Indigenous and Northern Affairs Canada, 2010). Aboriginal rights associated with lands and renewable resources must be respected as per the Government of Saskatchewan First Nation and Métis Consultation Policy Framework, which outlines the Duty to Consult Policy. This policy outlines responsibilities and operational procedures for government ministries, agencies and Crown corporations in decisions affecting lands and resources (Government of Saskatchewan, 2010).

Consensus building is another concept that has become widely used in land management and in consulting First Nations' communities, though the efficacy of consensus-building has been criticized for its ability to "further perpetuate hegemonic power of the state and reduce power inequalities to simply 'differences of opinion'" (Maclean, Robinson, & Natcher, 2015).

Constructive conflict is an alternative to consensus building, which may result in more rapid institutional change (Ojha, Paudel, Banjade, Mcdougall, & Cameron, 2010). This form of conflict is often introduced by Aboriginal groups, and may include formal protest to government agencies in a way that challenges inequalities and uneven distribution of power, which is typically a component of natural resource development (Maclean, Robinson, & Natcher, 2014). Outcomes of constructive conflict can include the creation of alternative natural resource management institutions to better include Aboriginal environmental agendas (Peterson, Peterson, & Peterson, 2005).

4.3.1 First Nations Land Management Program – Provincial Reserve Context

A key legislative change that affects First Nations communities and land management is the *First Nations Land Management Act*. This legislation allows First Nations to opt out of 40 sections of the *Indian Act* relating to land management, and permits these communities to create their own laws regarding land use, environment and natural resource development in order to take advantage of economic development (Government of Canada, 2019). The FNLMA ratified and brought into effect the *Framework Agreement on First Nations Land Management*, which was signed by the Government of Canada and 14 First Nations in 1996, before becoming available to all other interested First Nations communities in 2002. Under First Nations Land Management, land administration is transferred from the federal government to the First Nations community once the First Nation ratifies their own land code, which includes the authority to enact laws with respect to the land, the environment and resources (Government of Canada, 2019). This process allowed First Nations to establish their own land management administration through the development of a land code (Isaac, 2005).

Establishing a land code is a critical component to this legislation and allows for the same kind of participation in land use planning and policy direction as municipalities, but with some key differences. A land code is a legal land use document, and grants the First Nation the authority to manage land and exercise the rights and privileges held by other land owners including: expending and investing money; acquiring and holding real and personal property; entering into contracts; borrowing money; and becoming a party to legal proceedings (Isaac, 2005). This also allows a First Nations community to expropriate land for community works or other First Nation community development purposes, and this land under the FNLMA is immune from provincial expropriation. However, participation in the FNLMA does not affect the title to First Nation land, which continues to be held by the federal Crown and "reserved" for the use and benefit of First Nations (Isaac, 2005). To date, approximately 18 of 70 First Nations Reserves in Saskatchewan have successfully signed framework agreement under this Act (Government of Canada, 2019).

Chapter 5: Land Use Policy Legislation and Renewable Energy Power Production

5.1 Introduction

Now that the legislative status of land use development and the current state of the provincial monopoly crown corporation have been introduced, the emergence of renewable energy development as a land use can be explored within the provincial context of Saskatchewan. The incorporation of renewable or low carbon electricity generation has been strategized as an important factor in achieving GHG reductions (Fripp, 2012), however the spatial placement of these new forms of energy production have not been fully studied to understand their feasibility and impacts on land use. It has been demonstrated that renewable and non-renewable energy production both require significant land footprints. However, some renewable sources of energy, particularly solar development, require more land than conventional sources of energy (Spiess & Sousa, 2016). In a world where land is becoming an ever-scarce resource internationally, particularly where land is already largely utilized for agricultural production, understanding how land use legislation can affect these changes is an important area of study.

Dedicating land area to renewable energy production is a relatively new competing land use, and the legislative framework for regulating it must support this use. In jurisdictions such as Saskatchewan there appears to be a wealth of land available, but this land is in competition with other land uses. Therefore, it is important to understand how the emergence of utility scale renewable energy production as a new land use may affect the physical environment of the province. It is also essential to consider this new land use and its compatibility with existing land use legislation to appropriately manage its development and mitigate conflicts.

5.2 Renewable Energy as a Land Use

Renewable energy development, like other forms of energy development, require land for production and transmission. Renewable energy sources have been presented as a means to address the negative externalities of conventional energy sources. However, these newer forms of energy development have a much greater impact on land use when developed at the utility-scale. In jurisdictions where policies encourage renewable energy development, the added intensity of land required for these developments must be considered. The potential pace of development for renewable energy sources may also place a burden on existing legislative and local area planning processes and regulations where this form of development is not reflected in current land use planning policies. Potential conflicts that may occur between renewable energy development and existing forms of land development within a jurisdiction must also be considered.

5.2.1 Intensity of Renewable Land Uses

Conventional energy sources have significant land use impacts as well as impacts on environmental outcomes such as negative externalities and increased emissions. While renewable energy is becoming more common globally, its impact on land use has also become more obvious in terms of visual impact, local conflict, and compatible uses.

The most common forms of renewable energy developed within the province of Saskatchewan are solar and wind. Estimates outlining the intensity of land use for renewable energy development is unclear. The land use efficiency of utility-scale solar production remains ambiguous largely due to the exponential capacity of utility-scale solar energy development in the last decade (Hernandez, Hoffacker, & Field, 2014). Varying reports of efficiencies have been documented but the rapidly changing nature of these technologies makes it difficult to accurately estimate a power generation per area figure. Photovoltaic (PV) energy systems have been reported to generate a greatest amount of power per area among renewables, including wind, hydroelectric and biomass (Fthenakis & Kim, 2009). Solar energy production can be classified as either distributed or utility-scale. Distributed systems typically are smaller, and localized to utilize pre-existing infrastructure within the built environment (such as rooftop PV systems). Utility-scale installations are large, centralized enterprises with larger economies of scale which also necessitate large, flat parcels of land (Hernandez, Hoffacker, & Field, 2014; Hernandez, Hoffacker, Murphy-Mariscal, Wu, & Allen, 2015). There are varying accounts of the amount of land required for utility-scale solar power, especially as technologies change, but many estimates outline that the capacity-weighted average is 7.3 acre/MWac (Mega-watt acre) (Ong, Campbell, Denholm, Margolis, & Heath, 2013). Solar power generation is not only land-intensive, but may limit shared land uses on the same site. Utility-scale solar photovoltaic plants are therefore considered land-intensive. Although some opportunities have been identified to utilize degraded lands, and to co-locate solar panels with agriculture (Turney & Fthenakis, 2011), more research is needed to determine the viability of these particular scenarios.

In estimates by the National Renewable Energy Laboratory in the United States, large wind power facilities use between 24.7 and 123.6 acres per MW of output capacity (Denholm, Hand, Jackson, & Ong, 2009). Although wind energy can be considered intensive in use, it is still possible to use the surrounding land for other uses. For example, wind farms in particular can still support agricultural uses (U.S. Department of Energy, n.d.). However, wind farms are not eligible for inclusion in SaskPower's PGPP.

There are costs and benefits to all forms of energy production, but interest in renewable energy sources is creating a need to consider the land use dilemmas created by these forms of energy production. Such dilemmas were not as prevalent with existing conventional forms of energy production such as coal and natural gas. Because renewable energy production is an emerging issue, more research is required to anticipate future demand for land, and future land use conflicts that may arise as a result of renewable energy production in its various forms.

The effect of legislated environmental goals on the development of land for renewable energy is understudied. The actual land area size and new competition for land uses are often overlooked when it comes to organizing large-scale targets for renewable energy. Setting energy policy targets without considering the potential future land use can lead to physically unfeasible land use requirements to accommodate future low-carbon energy system targets (Dennis Konadu et al., 2015).

5.3 Developing Land for Energy Demand

5.3.1 Zoning and Renewable Energy Production

Land use planning is meant to regulate the best use of land amongst competing uses. It has been observed that municipalities play a crucial role in the development of strategies for implementation of renewable energy through the local decision-making process associated with

spatial planning. Local governments manage the spatial planning and zoning that can influence if and where these such developments of land can be located.

Euclidian Zoning is the most common method of land use planning and is named after the legal case *Village of Euclid v. Ambler Realty* where the legality of zoning was first established in the United States (Village of Euclid v. Ambler Realty, 1972). This method is widely used in Canada to divide specific uses of land within a community at a large scale, in order to separate and isolate different types of land uses and assert specific siting rules for those uses (Marwedel, 1998). As a method, it is meant to encourage particular kinds of development while constraining others within distinct zones. This would ideally present a stable, predictable development pattern that ensures spatial separation between potentially conflicting land uses such as residential and industrial uses. It is typically used as an instrument to execute policy goals. While it can be a useful tool, traditional zoning methods have been heavily critiqued as rigid and resistant to change due to their static nature (Lemmens, 2009).

In the case of renewable energy development, anticipating a municipal component or addressing smaller, community-scale renewable energy projects can be a challenge when outdated zoning bylaws are simply not nimble enough to accommodate these changes of use. As a result, municipalities can be faced with new development demands with limited or no regulatory or administrative direction to make such decisions. In cases where there are no provisions for renewable energy development, particularly solar energy, this lack of regulation can leave owners and residents vulnerable. The American Planning Association has been vocal about the need for appropriately updated land use policies and zoning for solar energy development, stating that "a conspicuous silence on the part of local policies, plans and regulations on the topic of solar energy use constitutes a significant barrier to adoption and implementation of these technologies (American Planning Association, 2016). Therefore, municipal zoning can play a critical role in reviewing and approving renewable energy developments, and can have further impacts on future success of projects.

It has been observed that prevailing patterns of energy demand occur in cities, but the main supply of renewable energy sources is typically found outside of urban settings and within rural areas. This can already be observed within the European context, which has developed considerable renewable energy resources, most of which exist tucked away within the low-population density countryside (Byrden, 2010). Introducing renewable forms of energy development into communities, regardless of their size, must be consistent with local land use planning legislation.

Renewable energy development is now quickly becoming a new form of competition for the use of land internationally, especially in areas outside of urbanized centres (Poggi, Firmino, & Amado, 2018). Land is a factor of production, and should be allowed to evolve to its highest-value uses, but in a way that is congruent with site-specific guidelines and uses (OECD, 2012). Development of renewable energy sources demonstrates a new competing land use within less densely-populated areas, but one that may be ahead of supportive land use planning regulatory frameworks. Therefore, integrating renewable energy production at the small utility scale of production may be difficult within existing land use planning documents that are not written with this land use specifically in mind.

Renewable energy development is a relatively new land use in competition with existing land uses such as residential commercial, agricultural, and industrial uses. These existing land uses have well-established land use regulations and local planning authorities are familiar with their process of development. For example, agricultural uses are an intensive land use that are

generally well-established within many rural areas that have established land use regulations associated with that use. Since renewable energy land use applications are a newer form of land development, municipalities may not have adequate administrative processes or legislation to manage these applications. This problem has been noted by Beddoe and Chamberlin (2003) regarding wind farm applications in England, where they emphasize that lack of precedents or guidelines often force local planning authorities to review applications with limited knowledge of the wind industry and without the support of a clear procedure for these applications.

5.4 Conflict and Coordination of Renewable Land Uses

The intersection of land use policy and renewable energy development requires the coordination of all levels of government policy, but evidence of coordination between these levels of government is limited. Permitting and regulatory constraints for various forms of renewable energy development vary with land ownership, ecological characteristics, and cultural significance (Painuly, 2001).

Internationally, it is becoming understood that the potential land-use impacts of renewable energy development and its siting processes are understudied. Scarcity of land and land cover changes resulting from renewable energy development, and particularly solar energy, are subject to conflicts with biodiversity goals and siting conflicts between existing land uses such as food production (Hernandez, Hoffacker, Murphy-Mariscal, Wu, & Allen, 2015; Theobald, Gross, Monahan, Olliff, & Running, 2014). Additionally, anticipated delays as a result of permitting requirements and regulatory reviews may also limit development, especially in time-sensitive project conditions with tight financial returns (Hernandez, et al., 2014).

Within Canada, renewable energy production siting and regulations depend largely on the provincial context of land use legislation and local area planning. Because each province is responsible for land use planning legislation, there are no common strategies that link them together, contributing to a largely fragmented policy environment (Rosenbloom & Meadowcroft, 2014). Even at the local municipal level, land use planning strategies can differ and are often only amended as needed to deal with different land use applications. Differences between municipal land use planning documents such as official community plans and zoning bylaws mean result in a lack of consistency in decision-making between different the provinces and even between municipalities of the same province.

Provincial guiding documents for municipalities can provide direction for local administrations faced with renewable energy land use applications. For example, Ontario has a more established context for renewable energy production, particularly at the municipal scale. The province created a document as early as 2012 to guide municipalities through these processes and shows a willingness to alleviate the pressure on municipalities to make these kinds of siting decisions (Government of Ontario, 2012). Because of the potential for conflict for the issuance of renewable energy development permits at the local scale, Ontario has recently amended their Renewable Energy Approvals regulation to restore municipal authority over local area planning and ensure that only projects with the appropriate municipal zoning can be issued a renewable energy approval (Government of Ontario, 2019). Clear land use restrictions and administrative review processes are outline within this document to limit the uncertainty and additional strain on municipalities for the expansion of renewable energy opportunities.

Existing land use policies and legislation are unlikely to be appropriate to deal with the potential conflicts that could arise as renewable energy development becomes more prevalent. Conflicts between residential, commercial and agricultural sectors may arise that existing land

use planning regulations are not properly prepared to manage. Even provinces with more developed land use frameworks like Ontario have had to adjust policies in order to manage the emergence of this new land use. Renewable energy development has therefore not been adequately considered for the larger demands on land use that other conventional energy sources have not placed on land use legislation and local planning.

5.4.1 Saskatchewan Context

Introducing renewable energy development as a competing, permitted land use may provide for opportunities within rural areas, but it may also contribute to a policy and value clash within a predominantly farming and resource-extraction economy like Saskatchewan.

Saskatchewan has deep roots in the agricultural sector and land use legislation has focused on this form of land use. Historically, crop production within the province has defined much of Saskatchewan's economic and cultural identity. Often referred to as the "breadbasket of Canada", the province dedicates much of its land use in the southern portion to agricultural production. In 2017, Statistics Canada reported 36.7 million acres of seeded cropland within Saskatchewan, more than Alberta and Manitoba combined (Statistics Canada, 2017). Because of agriculture's dominance in land use across the southern extent of the province, few other land uses that share the same level of intensity have been in competition for use.

Renewable energy developments that are in competition for land with other sectors have the potential to adversely affect local residents and disrupt other sectors. Land-intensive renewable energy sources have the potential to stoke conflict as they may threaten existing industries vying for land. It has been observed that solar development using PV panels will likely compete with agriculture for land (Dupraz, et al., 2011) and that this conflict may become a growing issue internationally as food production and energy production are in growing demand (Nonhebel, 2005). Landscape and land-use concerns are particularly strong in rural areas where local income is often tied to the land through agriculture and related industries (Linking Renewable Energy to Rural Development, 2012).

The prioritization of agriculture within land use planning legislation can be seen within subdivision legislation which limits residential subdivision development within rural farming-intensive areas and where policies preserve quarter section subdivisions to continue to support agricultural uses on parcels of land (Government of Saskatchewan, 2014). Generally, subdivision applications could restrict applications for renewable energy for those attempting to pursue a lease or acquire rights to a portion of land as approval is required from the Saskatchewan Director of Community Planning. There are currently no exemptions listed for the development of renewable energy projects for subdivision applications (Government of Saskatchewan, 2016). There are also restrictions outlining who can own farmland under Part VI of the Saskatchewan Farm Security Act, which limits non-Canadian entities from possessing aggregate land holdings in excess of 10 acres (Government of Saskatchewan, 1988). It is important that legislation be up to date and able to address the potential siting issues surrounding land use conflicts at the local level so that emerging uses such as renewable energy projects can be developed in accordance with the legislation. This is not currently the case in Saskatchewan. The above combination of existing legislation that favour agricultural land uses may present a problem for future renewable energy land use applications since the policy context has an entrenched history of accommodating this land use. These policy interests are entrenched, and the introduction of renewable energy land use development has been simply layered on to this existing policy context.

5.5 Provincial Policies, Community Impacts

This research asks several questions, but one key question aims to explain why communities might wish to develop renewable energy through participation of a program like the PGPP. This builds on the observations of other scholars who have recognized how provincial and local governments are creating their own renewable energy policies to address international pressures. This research goes a step further to understand the incentives for smaller community-scale governments to participate in small-scale utility renewable energy development and discover potential conflicts in existing land use policy. These interactions between provincial crown incentives and the local land use planning legislative and political context are not yet well understood due to the speed these incentives are becoming available, and the emergence of utility-scale renewable energy as a land use in competition for developable land.

5.6 Incentives for Community Participation

Citizen and private participation in energy projects contrasts with the centralized energy structures within Saskatchewan, where SaskPower holds a monopoly. Therefore, it is meaningful to study the incentives that might encourage citizen and community participation in developing renewable energy projects through the PGPP.

Renewable cooperatives are a prevalent form of renewable energy ownership in Europe (Bauwens, Gotchev, & Holstenkamp, 2016) largely due to administrative requirements for citizen ownership of wind projects. For example, Denmark has a strong history in wind energy production because its development was initially restricted by the government to require owners of wind turbines to be local actors. After deregulation of these restrictions in 1999, local ownership is still an option as developers are compelled to offer at least 20 percent of the ownership of new wind mills to local citizens living within a radius of 4.5km, while public guarantee funds were established to support financing and local area planning procedures for local wind power cooperatives (Bauwens, Gotchev, & Holstenkamp, 2016). Germany has had a similar variation in renewable energy development on behalf of small actors (Bauwens, Gotchev, & Holstenkamp, 2016). However, support of community ownership is prevalent at the local level despite a legal land capacity to enforce it.

Because the cooperative model has not become mainstream in Canada or the Prairie Provinces, it is difficult to compare the established renewable cooperatives of Europe with the handful of renewable energy cooperatives existing in Canada. Saskatchewan does not have the same tradition of local energy activism as other local jurisdictions internationally. Only a few energy cooperatives have formed within the province including Saskatchewan Community Wind and the Saskatchewan Environmental Society Solar Cooperative Ltd. (Saskatchewan Environmental Society, 2019; Sask Wind, 2019).

However, some of the research undertaken regarding European community-based renewable energy projects can be used to understand the renewable energy efforts within Saskatchewan, and why communities might be inclined to pursue the programs offered by SaskPower or independently at the household level. Bauwens' research outlining the diversity of motivations behind community renewable energy provides a good framework to study the current fledgling efforts within Saskatchewan. This approach recognizes that support from business organizations, households and civil society actors will be necessary in order to achieve investments into renewable energy. The concept of "community energy" is defined as formal or

informal citizen-led initiatives which propose collaborative solutions on a local basis to facilitate the development of sustainable energy technologies and practices (Bauwens, 2016).

Saskatchewan communities may be interested in pursuing renewable energy development for either sustainability or economic development reasons. According to Bauwens' research, support from business organizations, households and civil society actors are necessary in order to push renewable energy initiatives and investment at the community level, and it is likely that economic development or sustainability incentives are major influencing factors in these motivations. SaskPower echoes these influences in its communication of the PGPP for why communities might seek to participate in this program. This program may be attractive to communities if they share these goals of sustainability and/or economic development within their existing land use plans. These two motivations will be explored empirically in the next chapters using document analysis techniques to capture the specific context of existing community land use plans.

Chapter 6: Methods

6.1 Introduction

This chapter outlines the qualitative research methodology employed in this project. This empirical analysis assesses why a community might wish to participate in renewable energy development through SaskPower's PGPP program; to what extent policy layering or incoherence within the context of land use planning policy impact PGPP applications as an emerging land use; and, how existing land use planning documents at the local community level might impact PGPP applications. To answer these research questions, three primary approaches were used: review of existing provincial land use planning policy and legislation; thematic document analysis of land-use policy documents; and, document analysis of community land use planning documents. The ethics of the research plan and implications of the research were carefully considered before data collection and analysis began, and a thorough plan to approach case selection and document review was finalized before the data collection phase.

6.2 Qualitative Research Approach

This research utilizes a qualitative methodology in order to approach the research question. Case-study analysis is a large component of the research. It provides a detailed glimpse into a research problem and allows the researcher to gather insight from individual cases experiencing similar phenomena within a unique policy context (Baxter & Jack, 2008). Document analysis was used to review both electronic and printed documents.

6.2.1 Data Collection

There were several methods of data collection in this research. An extensive literature review focused on renewable energy and land-use within the Canadian and Saskatchewan context was undertaken to ground the empirical analysis (see Chapters 3-5 above). This prevented duplication of work and provides context for the data collection and analysis. The literature review also provided the basis for case study selection of representative communities. Local and provincial documents were identified using key word searches related to the research question.

Data sources for this research project include primary and secondary sources. Research focused on organizational, academic and institutional documents for the initial literature review, and included policy papers, organizational documents and reports made public by SaskPower, reports and official website information made available by the Government of Saskatchewan, as well as news articles and other related online media that related to small utility-scale power producers, renewable energy and land use policy. Academic sources included peer-reviewed journals, scholarly books and other research reports of current academic work on renewable energy policy.

6.2.2 Document Analysis Techniques

Document analysis is an important component of this research project. A detailed planning process was undertaken to ensure the reliability of sources for textual analysis. Based on O'Leary (2014), this planning process included building a comprehensive list of texts to explore; acknowledging biases of the researcher before documents were assessed; creating an

organizational protocol for reviewing, storing, and cataloguing sources reviewed. For a full review of the document analysis procedure utilized in this research, see Appendix 1 – Methods.

Analysis of the documents followed the protocol established in the planning phases of research. Sources were copied for annotation purposes, studied for agenda and biases; and background information analysed with regard to the style, tone, and purpose of the publication. Quality of documents was preferred over quantity of documents in textual analysis, and the document analysis was undertaken with the recognition that the information cannot be "necessarily precise, accurate, or complete recordings of events that have occurred" (Bowen G. , 2009). The triangulation of data included at least two sources of evidence in order to seek convergence and corroboration through the use of different data sources and methods (Bowen G. , 2009). By triangulating data, the research attempts to provide "a confluence of evidence that breeds credibility" (Eisner, 1991) and aims to reduce the impact of biases. Document analysis was used instead of interviews for the purposes of this research. The enquiry is focused on the policy context, and therefore interviews are unlikely to have contributed additional information necessary to meet the research objective.

Two document analysis techniques were employed. A thematic analysis of land use planning documents and provincial legislation provides an overview of two contrasting motivations that may incentivize development of renewable energy projects at the local level. These were economic development and sustainability, both themes were determined by the results of the thematic review, and demonstrate why SaskPower may present the PGPP as both an economic opportunity and as a sustainability measure. These themes were then compared to a thematic review of the existing land use planning documents specific to each study community to determine if either of these motivations were evident within those long-term planning documents. In addition, document analysis in the form of a word search demonstrated which communities had identified renewable energy development in their regulatory planning documents and illuminated inconsistencies between SaskPower's PGPP that encourages this new land use, and existing local land use regulations that might impact that form of development.

A formal procedure was created for the review of land-use policy documents specific to the representative community study research. These documents were analyzed based on a targeted word search in order to investigate the extent to which their policies may be able to manage land use applications with renewable energy development as a principle land use within the community. This was further broken down into more specific themes, starting with the inclusion of general policies that could support this form of development; to providing clear administrative protocols and application requirements or minimum development standards for this form of development.

6.3 Representative Community Selection and Document Analysis Protocol

6.3.1 Representative Community Selection

In order to appropriately understand the current state of land use planning in Saskatchewan and its impact on applicants interested in participating in the Small Power Producers Program administered by SaskPower, this study examines individual cases of communities with land-use planning documents. In this way, each community type can be critically examined for its ability to handle applications for renewable power production as a competing land use within their jurisdiction. For the purposes of this research, community has been defined as groups with governance legislation under the *Planning & Development Act*, or First Nations governed by the *Indian Act* and the *First Nations Land Management Act*. The

research focuses on these types of communities, but acknowledges that other groups such as non-profits, businesses and cooperatives may be interested in participation of the SaskPower PGPP and will have to adhere to the same land use planning rules for renewable energy development.

Communities may have a different land use planning context and documents based on the type of community. Municipalities are governed under provincial Acts, and individual land use planning documents typically must include an Official Community Plan, and a Zoning Bylaw. The contents of these documents are regulated provincially, and in Saskatchewan fall largely under the *Planning & Development Act*, and *The Statements of Provincial Interest*. Alternatively, First Nations and their land management are typically regulated under federal jurisdiction, as outlined within the *Indian Act*. In cases where a community has opted out of sections of the *Indian Act* pertaining to land use and management, these communities must develop their own land use planning documents as per the *First Nations Land Management Act, 1999*. Although this Act does not perfectly mirror the provincial Acts in terms of details pertaining to land use planning criteria, it is important to include it within this research since it is still a guiding document for the creation of land use plans for First Nations communities pursuing this level of autonomy. Figures 1 and 2, below, illustrate the relationships between provincial and federal legislation and the communities' land use planning documents.

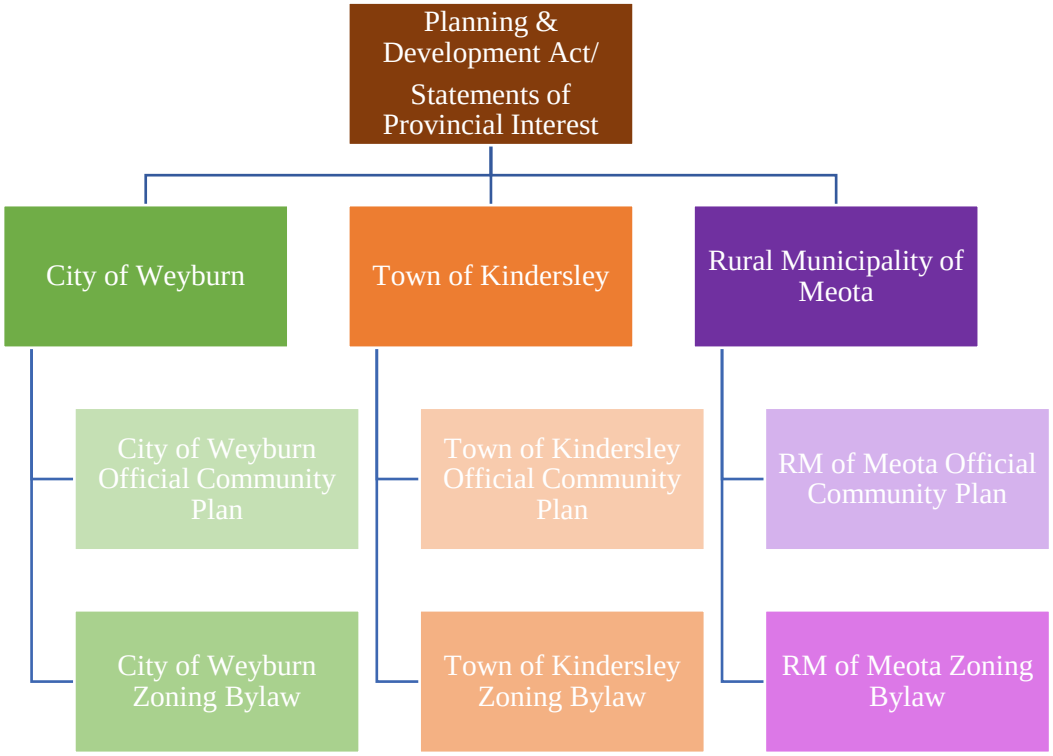

Figure 6.1 Provincial Land Use Planning Legislative Context – Municipal Context

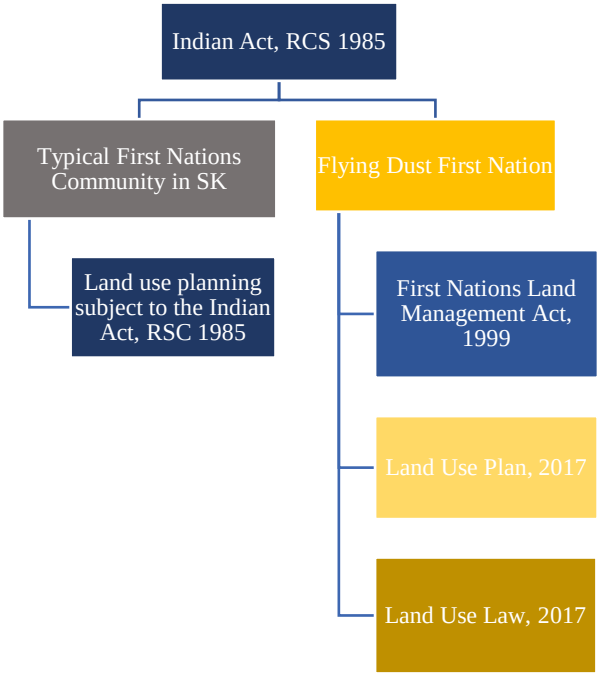

Figure 6.2 First Nation Federal Land Use Planning Legislative Context

6.4 Case Study Selection – Representative Communities

Representative communities were chosen within Saskatchewan to demonstrate the potential differences in land use planning policy contexts for each community. This approach allows for detailed study of each individual community to find relevant differences and similarities that might affect small-scale utility renewable energy production within each jurisdiction. Each municipality was chosen in order to best represent the forms of municipal communities that may be interested in participating in the PGPP: cities, towns, rural municipalities, and First Nations. Each community may have unique land use constraints based on their land use planning context, whether municipality or First Nations community. The federal or provincial context of each community is noted, and specific land use planning regulations and policies are carefully considered to capture potential differences in local planning documents in terms of community development goals and administration of land use planning regulation.

Communities were chosen with consideration of the location within the capacity map outlined by SaskPower; the availability of land use policy documents from public online sources; and the experience of the researcher. For a more fulsome overview of the selection process, please refer to Appendix 1 - Methods.

While the province provides general direction for individual land use plans, municipalities still exercise their own rights to administer land use planning locally in a way that would fit the future goals and current context of the community. Criteria for choosing appropriate representative communities was determined before the final case selection. It was important to choose communities that had publicly available planning documents that were recently updated by the community in order to be to valid working documents used administratively by local decision-makers. It was also important that these communities could potentially be considered for the PGPP based on their location to priority areas as disclosed by

the PGPP. The researcher's existing knowledge of land use planning documents was used to eventually choose appropriate cases based on the age of the planning documents and level of detail provided.

Based on the selection criteria, communities chosen for review within this research are the City of Weyburn, the Town of Kindersley, the Rural Municipality of Meota, and the Flying Dust First Nation.

6.5 Overview of the Communities

The communities chosen for this research vary by community type to illustrate the legislative differences between individual communities based on their provincial or federal legislative context, and to identify differences between communities based on local land use planning documents. These communities are organized by size and by legislative background. City, town and rural municipalities are governed by provincial land use legislation that permits each community to create their own local land use planning documents to establish and manage land uses within their community. These communities are assigned 'city' 'town' and 'rural municipality' designations based on their size as outlined within the *Municipalities Act*, and the *Cities Act* (Government of Saskatchewan, 2019). First Nations communities can similarly self-manage their own land uses through land use planning documents if they are governed under the First Nations Land Management Program (See Chapter 6 for detailed information on legislative contexts for local land use plans). A general overview of each representative community is included below.

6.5.1 The City of Weyburn

The City of Weyburn is located within the southwestern portion of the province along the Souris River, and within Census Division 2. It is the tenth-largest city in the province and its population was reported as 10,870 in the most recent 2016 Census data, with an overall land area of 19.15 square kilometres (Statistics Canada, 2019). Approximately 5,775 persons aged 15 and over were in the labour force as of 2016, and the top employment industries as classified by the North American Industry Classification System (NAICS) were health care and social assistance (940); mining, quarrying and oil and gas extraction (650); retail trade (645); and construction (405) (Statistics Canada, 2019). These employment data provide some general information about which land uses are most prevalent within the community, which appears to accommodate labourers from several industries, and provide for commercial spaces to support retail and potentially industrial uses.

6.5.2 The Town of Kindersley

The Town of Kindersley is located in west-central Saskatchewan, within Census Division 13. The Town covers a geographic area of 13.23 square km as per 2016 Statistics Canada data (Statistics Canada, 2019). It is one of 147 towns within the province (Government of Saskatchewan, 2015) and had a population of 4,597 as of 2016 Census data (Statistics Canada, 2019). There were 2,730 persons aged 15 years and over in the labour force according to 2016 Census information. Retail trade was the dominant industry with 440 persons working within this industry, followed closely by 'Mining, quarrying and oil and gas extraction' (390 persons) and 'Accommodation and Food Services' (250) (Statistics Canada, 2019). The prevalence of the oil and gas extraction industry informs land use within this area. The Town's website lists agriculture and oil and gas as the main industries, and that retail and other business services cater

to a surrounding population of more than 28,000 residents in nearby municipalities (Town of Kindersley, 2019). Land use within the Town is therefore focused on service delivery for these industries and workers.

6.5.3 The Rural Municipality of Meota No. 468

The Rural Municipality (RM) of Meota No. 468 is located within the western portion of central Saskatchewan. It is within Census Division 17 as determined by Statistics Canada, and is described as being located within the west-northwest portion of the province (Statistics Canada, 2019) although it is located closer to the southern border with the United States than the northern border of the province. The total land area of the municipality was 651.06 square kilometres as of most recent 2016 Statistics Canada data (Statistics Canada, 2019). It is one of 48 rural municipalities in Division 6 of the Saskatchewan Association of Rural Municipalities (SARM) (SARM, 2019), and is one of 296 rural municipalities across the province (Government of Saskatchewan, 2015).

The population of the RM was 933 as of 2016 (Statistics Canada, 2019). The total labour force within the RM aged 15 years and over was 540, with the largest number of respondents (120 as of 2016 Census data) reporting agriculture, forestry, fishing and hunting as their industry (Statistics Canada, 2019). Based on this information, it is likely that the primary land use within the RM is agricultural.

6.5.4 Flying Dust First Nation

The Flying Dust First Nation is a Cree First Nation located in the central/northwestern portion of the province. The reserve is located northeast of the City of Meadow Lake, and is a member of the Meadow Lake Tribal Council (Meadow Lake Tribal Council, 2019). Its location within prime northern Saskatchewan farmland and the service centre of Meadow Lake provide a thriving industry base and include NorSask Sawmill, Meadow Lake Mechanical Pulp Industry and Meadow Lake OSB Ltd Partnership (Flying Dust First Nation, n.d.). The First Nation has a population of 577 living on-reserve as of most the recent Statistics Canada data, but the community also has a number of members living off-reserve (Meadow Lake Tribal Council, 2019). The First Nation has a total land area of 36.81 square kilometres according to most recent data (Statistics Canada, 2019). The Nation is governed by a chief and council which operate with a portfolio and committee system for managing the community (Flying Dust First Nation, n.d.).

According to the most recent census information, of the 245 on-reserve members in the labour force aged 15 years and over, the most dominant industry was Public administration (45 respondents); followed by construction (35) (Statistics Canada, 2019). The First Nation actively participates in business partnerships, which have included the management of a 12,000-acre farming, sand and gravel operation, with other future projects to be considered for Treaty land entitlement purchases (Meadow Lake Tribal Council, 2019).

General results from the document analysis are outlined in Chapter 7. Full analysis of the word search and thematic document analysis review, the land use planning documents and their pertinence to the research question are examined in Chapter 8.

Chapter 7: Representative Communities Analysis

7.1 Introduction

Utilizing land for renewable energy production is a newer form of land use development within the province and beyond. Since competing land uses are administered through land use planning documents such as official community plans and zoning bylaws, it is important to determine whether these planning documents can support the use of renewable energy production at a commercial scale. As a result, it is important to capture the current state of readiness within communities that might see such applications for development permits for renewable energy power production and their land use planning regulatory documents. Since these documents also outline the general goals and vision for a community's future land uses, these documents can also provide insight into the motivation for future development goals and outcomes.

7.2 Land Use Planning Documents

The types of land use planning documents include the municipal or community-scale and provincial-scale land use planning documents. Community-scale land use planning documents utilized to inform future development for each individual community, and typically include Official Community Plans (OCPs) and Zoning Bylaws. Provincial land use planning Acts and informative documents meant to inform these municipal-level planning documents such as the Planning & Development Act, and *The Statements of Provincial Interest* were also reviewed. While First Nations communities can have land use planning documents such as Land Use Plans and Land Use Laws, these documents are created under a separate federal legislative context, so the related First Nations Land Use Management Act was also reviewed.

7.3 Document Analysis General Findings

Generally, the provincial and federal legislative guiding documents are meant to inform how local land use planning documents are written, and generally how land use is to be administrated at the community-level. As a result, these documents tend to focus on environmental issues. This was borne out in the document analysis. The *Planning & Development Act, 2007* makes 42 mentions of 'environmental' where *The Statements of Provincial Interest* include the term 17 times. The federal *First Nations Land Management Act* document also mentions the term environmental 15 times. Renewable energy was not mentioned at all in any of the guiding documents, and solar energy was mentioned once within the *Planning & Development Act*, but not in any other document.

7.3.1 Provincial Legislative Guiding Document Findings

Since the *Planning & Development Act, 2007* along with *The Statements of Provincial Interest* provide direction and outline the minimum requirements for community-specific land use planning documents, they are essential documents for content study. Communities must follow the guidelines set forth by these documents in order to become law, so they are an important consideration in identifying the basis for each community's individual plans. *The Statements of Provincial Interest* document was first created in 2012 and this document analysis was based on amendments up to and including July 1, 2019. *The Planning & Development Act,*

2007 was first created in 2007 and has undergone amendments, most recently in May 2018. The results from the word search are presented in Figure 3, below.

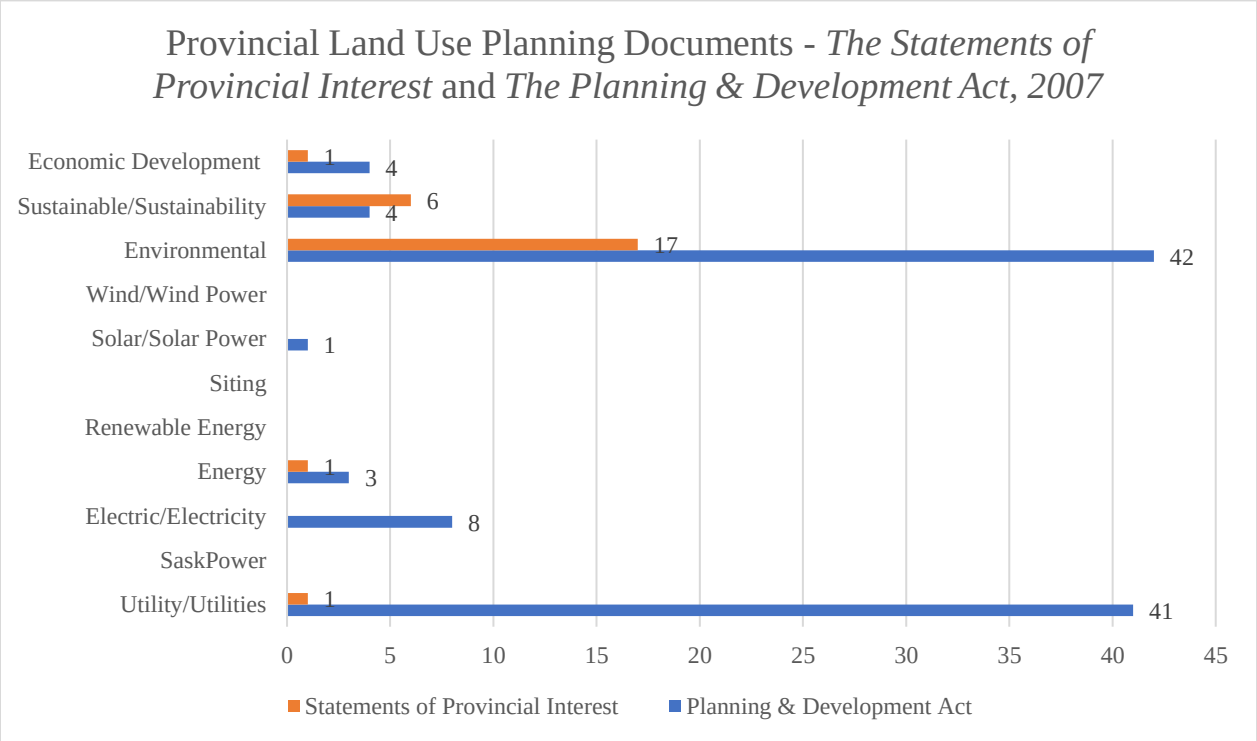

Figure 7.1 Provincial Land Use Planning Documents – Statements of Provincial Interest and Planning and Development Act

As outlined in Figure 3, the most prevalent words in the two provincial policy documents focused on environmental aspects of land use planning as well as on utilities. These were most dominant within the *Planning & Development Act, 2007* which outlines the specific regulations for land use planning documents. The *Statements of Provincial Interest* provide general topics to be included within land use planning documents, and words pertaining to environmental and sustainable topics were most prevalent.

The absence of "renewable energy" within either provincial document is notable. Wind and solar power are also largely absent, which means that these documents do not provide any general guidance towards planning for renewable energy production nor do they provide any specific regulation pertaining to this land use development.

7.3.2 Federal Legislative Guiding Document Findings

First Nations must undergo a different process in order to create administrative land use documents in order to manage their own land and resources within the community. In Canada, First Nations that wish to exercise control over land and resources must adhere to the administrative process and provisions within the *First Nations Land Management Act, 1999*. This Act was first created in 1999, and the document analysis includes amendments up to and including July 15, 2019. Results of the document analysis are presented in Figure 4.

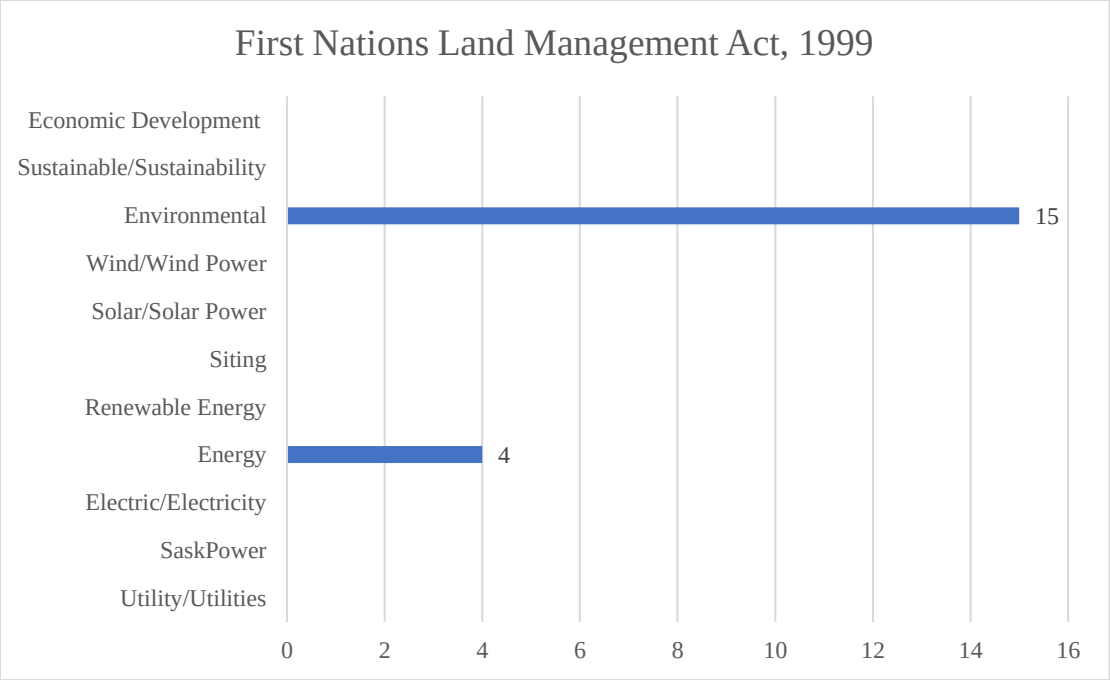

Figure 7.2: Federal Land Use Planning – First Nations Land Management Act

Because this federal Act is more focused on the administrative requirements for a First Nations community to achieve self-governance of land administration, it is less detailed than the provincial Acts pertaining to land use policies. It is important to note that similar to the provincial Acts, environmental terms were prevalent within the document analysis.

7.3.3 General Overview of Document Analysis – Thematic Review Findings

The land use planning documents for each of the representative communities were reviewed using the same procedure used for the provincial land use planning documents. Each community has two land use planning documents. The broad planning documents that outline a community's vision and broad land use development goals are typically located within an Official Community Plan for municipalities and a Land Use Plan for First Nations. The specific regulatory documents that outline which types of development are permitted and stipulate development standards are located within the Zoning Bylaw document for municipalities and a Land Use Law for First Nations. The results for the Official Community Plans and Land Use Plan for each of the representative communities are found below, followed by the results for all Zoning Bylaws and Land Use Law documents for each representative community. Table 1 provides a general overview of the results of the document analysis that was undertaken for each community. A fulsome review and breakdown by community can be found in the next chapter.

	Community Type:	City of Weyburn		Town of Kindersley		Rural Municipality of Meota		Flying Dust First Nation	
		OCP	Zoning Bylaw	OCP	Zoning Bylaw	OCP	Zoning Bylaw	Land Use Plan	Land Use Law

1	General Policy Consideration of Renewable Energy Development	✓	✓	✓	✓	✓	✓	✓	✓
2	Specific Site Standards for Solar Development (Principal Use)	✗	✗	✗	✓	✗	✗	✗	✗
3	*Specific Site Requirements for Solar Development (Accessory Use)*	✗	✓	✓	✓	✗	✗	✗	✗
4	Specific Site Standards for Wind Development (Principal Use)	✗	✗	✗	✓	✗	✗	✗	✗
5	*Specific Site Requirements for Wind Development (Accessory Use)*	✗	✗	✗	✓	✗	✗	✗	✗
6	Administrative Processes for Renewable Energy Application Reviews	✗	✗	✗	✓	✗	✗	✗	✗
7	Community Development Values & Goals (Economic Development – 'ED' or Environmental Sustainability – 'ES')	ED=ES		ED>ES		ED>ES		ED<ES	

Table 7.1 Thematic Review Findings

Table 1, above, is based on a detailed reading and thematic analysis of the documents beyond the word search method. This document analysis method of community planning documents led to the creation of seven general policy themes that were important in considering their content pertaining to renewable energy development at the local level. The themes were: 1) General Policy Consideration of Renewable Energy Development; 2) Specific Site Standards for Solar Development as a Principal Use; 3) Specific Site Standards for Solar Development as an Accessory Use; 4) Specific Site Standards for Wind Development as a Principal Use; 5) Specific Site Standards for Solar Development as an Accessory Use; 6) Administrative Processes for Renewable Energy Application Reviews; and 7) Community Development Values & Goals.

In order for a document to have demonstrated General Policy Consideration of Renewable Energy Development, the document had to meet certain review criteria. These criteria involved the inclusion of a general policy goal that could potentially be consistent with the inclusion of renewable energy development as a land use within the community. This could

be demonstrated by one or more of the following components: climate change targets, renewable energy strategies, statements of environmental importance to the community, or environmental values stated within OCP documents. The OCP documents were primarily reviewed for these kinds of components because they typically outlined the future goals and values of a community based on community feedback and engagement sessions. Since these typically create a strategic future planning document, they can provide insight into whether a community might be in favour of renewable energy projects even if they are not expressly stated within their OCP or regulatory Zoning Bylaw. All communities under review could potentially be in favour of a renewable energy development if the stated future development desires are taken seriously. Each community has provided values in their documents that trend towards environmental sustainability or expanding their local economy towards new and emerging industries.

At a more specific level, only one community was coded as providing specific site standards for solar development as a principal use. The criteria for meeting this included the provision of specific development standards for solar energy production as the principal land use of a particular site. This was demonstrated by the inclusion of a definition for solar energy production facilities; clarification on which areas this use may be a permitted or discretionary use; siting development standards including height, setbacks and separation distances and associated site-specific requirements necessary for approval. Only the Town of Kindersley Zoning Bylaw met the requirements for these standards.

In order for a document to be coded as providing specific site requirements for solar development as an accessory use, the document had to demonstrate some site-specific requirements for single solar collectors, but imply that only a single solar collector developed in association with a permitted use would be permitted. These typically would include additional requirements pertaining to height setbacks or glare considerations. Both the City of Weyburn and the Town of Kindersley had provisions within their Zoning Bylaw regulations that gave some direction for solar development.

Documents that had demonstrated specific site standards for wind development as a principal use needed to include a definition for wind energy production facilities; clarification on which areas this use may be permitted or discretionary; include site development standards including height, setbacks and separation distances and associated site-specific requirements. The Town of Kindersley's Zoning Bylaw was the only community under review that met these review requirements.

In order for a document to have met the requirement for Specific Site Standards for Wind Development as an accessory use, the document had to demonstrate some site-specific requirements for single wind chargers. Similar to accessory solar collectors, this implies that a single collector only be permitted in association with a permitted use (such as existing residential), typically with requirements pertaining to height, setbacks, or separation distances.

Furthermore, all documents were reviewed to ascertain if any administrative processes for reviewing renewable energy production applications had been established for any communities. In order to meet these criteria, a document had to demonstrate an administrative process for reviewing applications specific to renewable energy production, and include direction for applicants in regards to application requirements; outline which zoning districts this use would be permitted or discretionary; and what considerations Council would evaluate for Discretionary use decisions. The Town of Kindersley was, once again, the only community to have included such provisions within their Zoning Bylaw.

Finally, the OCP and Land Use Plan documents were read thoroughly to capture the community's stated values and goals, which are included in all communities' plans. Two general themes emerged amongst these values and goals: environmental sustainability and economic development. Based on the number of stated goals and values relating to each theme, each document was scored on their trend towards either goal, or if the goals were presented as equally important, which was the case in the City of Weyburn. The Town of Kindersley had more goals and values statements focused on economic development than environmental sustainability, but did have an interesting focus on innovation, which was different than other communities studied. One specific goal focused on the desire to "promote and encourage innovative and sustainable development within the community" (Town of Kindersley, 2014) which could explain the community's further dedication to include renewable energy provisions within their Zoning Bylaw. The RM of Meota also had more emphasis on economic development than sustainability goals stated as values. This community had specifically mentioned economic and agricultural goals for their community's future development. Agriculture is a land use that the community has identified as important to their values and they would like to ensure remains in the RM. Finally, The Flying Dust First Nation has expressed land use planning goals generally more congruent with environmental goals than economic development. The community has stated that the natural environment is important to them, especially to preserve traditional values and connections to the land. The community feels that it is "important for the Flying Dust to set high standards, take advantage of opportunities and progress as a Nation to benefit future generations" (Flying Dust First Nation, 2017) but no further values towards economic development are mentioned. The differences in land use contexts among the communities provide insight into each community's goals and should be consistent with the regulations found within the accompanying Zoning Bylaw documents. Further analysis regarding the values and goals of these documents can be found in Chapter 9.

7.3.4 All Communities At-A-Glance

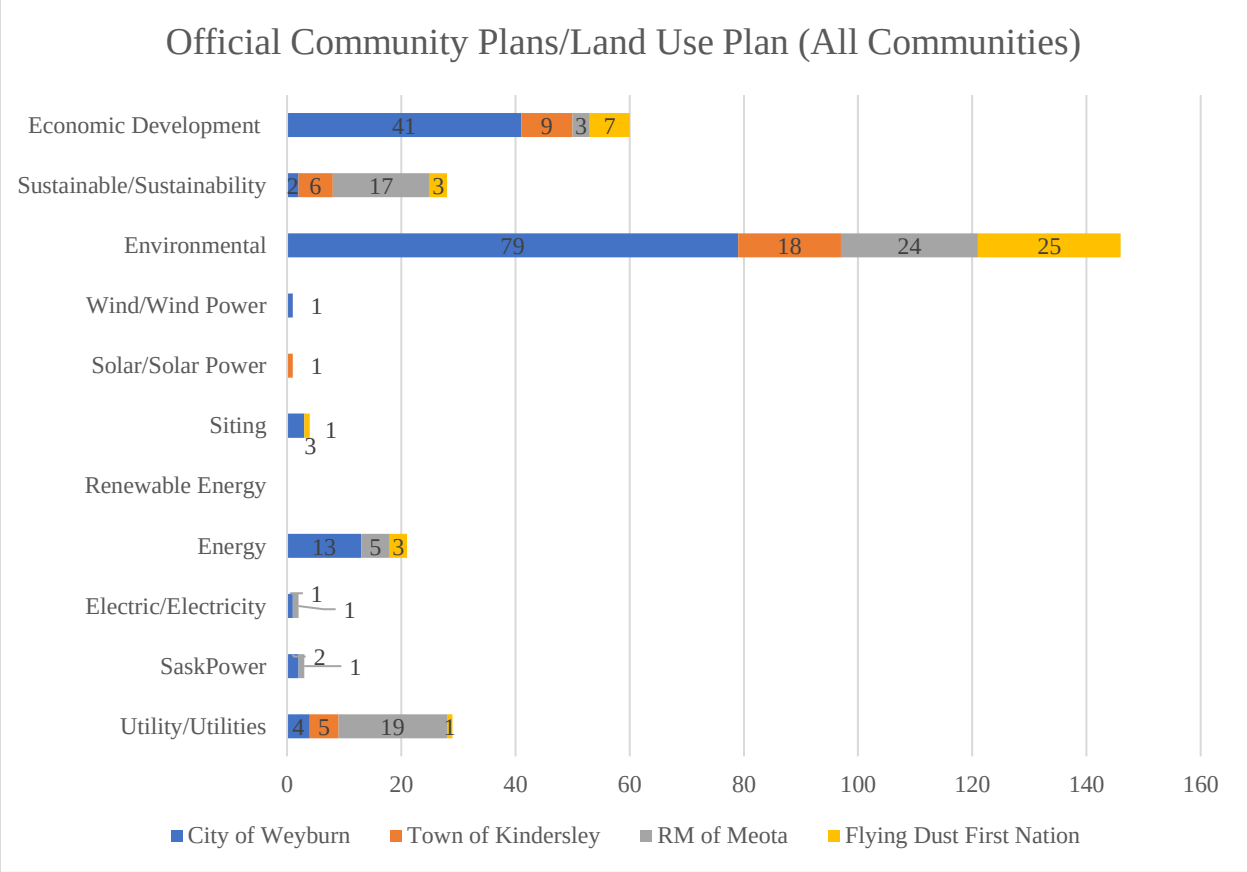

Figure 7.3: Official Community Plans/Land Use Plans - All Communities

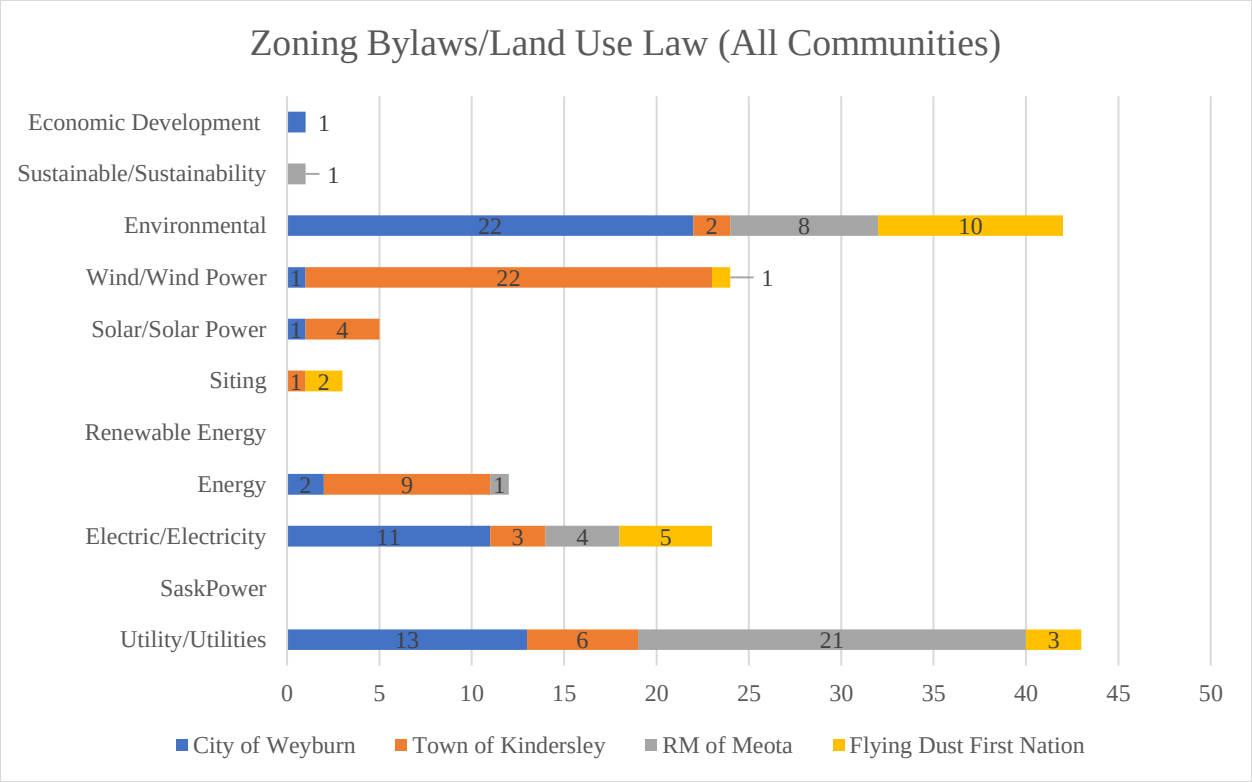

Figure 7.4: Zoning Bylaws/Land Use Law (All Communities)

Within the communities' broad policy documents, "economic development" and "environmental" terms dominate the word searches. This is consistent with policy language intended to meant for setting high-level goals for the community. It is also consistent with *The Planning and Development Act, 2007* and with *The Statements of Provincial Interest*, which largely guide the creation of municipal documents (the Flying Dust First Nation Land Use Plan is not required to follow these provincial guidelines). The most prevalent word searches within the Zoning Bylaw/Land Use Law documents were 'Environmental' and 'Utility/utilities' which is consistent with regulatory documents that provide site-specific direction for land use development.

Because this research is focused on how these documents reference renewable energy, solar or wind energy production, these were important terms to include within the word search. The overarching policy documents make little mention of these potential land uses. Renewable energy as a term is not mentioned at all in either the general planning documents or the specific regulatory documents. Wind and solar power are also minimally mentioned within the OCP and general zoning documents and are only mentioned within the City of Weyburn and Town of Kindersley Official Community Plans. Within the regulatory documents of the Zoning Bylaw and Land Use Law, wind and solar power are mentioned more than in the general policy documents, but mostly occur within the Town of Kindersley Zoning Bylaw, with an overwhelming 22 mentions of wind/wind power within this document, far more than any other comparable document within the other communities. Local land-use documents can identify the general development goals for a community, and the word search methodology can provide a glimpse into the values of a community at-a-glance, based on prevalence of specific words within their OCP and Zoning Bylaw.

As outlined above, the only community to include any specific site standards for solar development as a principle use was the Town of Kindersley Zoning Bylaw. Communities that provided specific site requirements for solar power as an Accessory Use included the Town of Kindersley and the City of Weyburn Zoning Bylaw documents. The Town of Kindersley was also the only community within the study areas that mentioned any specific site standards for wind development as a principle or accessory use; as well as the only municipality to provide administrative processes for renewable energy application reviews.

The Town of Kindersley was clearly at the forefront of providing any form of land use planning direction towards renewable energy as a land use development. That being said, this does not mean that the Town can adequately manage current applications, or that portions of the Zoning Bylaw are not contestable. Detailed considerations for each community and their land use planning context are outlined in the next chapter.

Chapter 8: Results from the Representative Communities

8.1 Introduction

This section provides detailed results of the document analysis. Each representative community is described, and the land use planning documents are presented, as are the results of the document analysis. With these land use planning documents in mind, potential barriers specific to the land use planning documents are outlined specific to each community and their land use planning context. General themes from the document analysis from land use planning documents from each representative community were identified. The dominant themes across communities include environmental and economic development. These themes were captured within sections of the documents outlining future land use planning goals and values within communities, which were typical of Official Community Plan Documents and Land Use Plans.

8.2 City: City of Weyburn

8.2.1 Land Use Planning Documents – General Comments

The City of Weyburn has an Official Community Plan and corresponding Zoning Bylaw. These documents are meant to provide for strategic development direction for future growth. These documents were created in 2003 and have been regularly amended to capture the community's changing needs. The documents reviewed for this research were amended as of August 27, 2018.

8.2.2 Results of Document Analysis

8.2.2.1 City of Weyburn

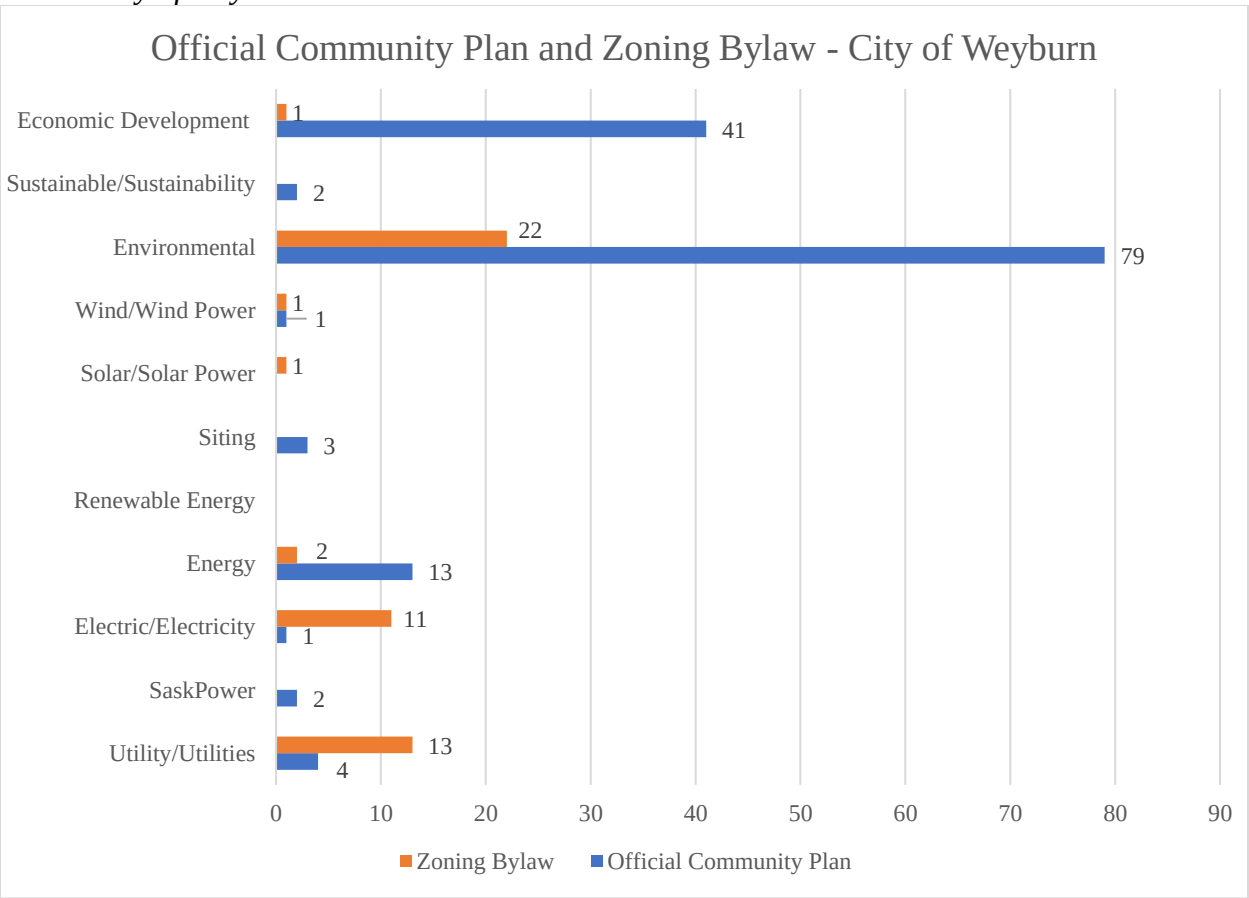

Figure 8.1: Official Community Plan and Zoning Bylaw - City of Weyburn

The overall breakdown of word search term occurrences within the Official Community Plan were largely focused on terms of environmentalism and economic development. The Zoning Bylaw also had many instances of "environmental" (22), "utility" (13) and "electric"/"electricity" (11). There were no mentions of "renewable energy" within the document, and only one mention of "solar".

Generally, there is emphasis on energy within the City of Weyburn Official Community Plan, but it is focused on energy within a conventional context of heavy industrial extraction. There were no specific mentions of renewable energy, solar or wind power within the OCP. The Official Community Plan makes some specific mention to environmental items within its strategic goals. One such goals is "to maintain a high level of environmental quality" which includes considering the "character of industrial development" and the "appropriate land use is an important element in environmental quality". Another strategic goal is "to foster a safe, secure and healthy environment" which aims to provide a superior level of environmental quality that will assist in the maintenance of a healthy population. Other overall goals are congruent with provincial planning documents and mention environmental protection of sensitive areas, and ensuring that development coincides with environmental protection. An Environmental Protection Policy is also mentioned as a means for the City to provide overall environmental

leadership, to ensure that an "integrated and holistic approach to environmental management and protection is achieved."

A Zoning Bylaw is typically the document that might provide some specific direction for land use development and outline minimum development requirements for permitted uses. This particular Zoning Bylaw does have a definition for "Public Utility" but this is based on a provider that is owned or operated by the City, or by a corporation under Federal or Provincial statute. Therefore, this community's Zoning Bylaw only applies to SaskPower as a public electricity utility and likely would not apply to an independent power producer. However, since this Bylaw does mention municipal ownership, there may be opportunities for the City to own a renewable energy project and determine that it is a "public utility". This definition is important since public utilities are often exempt from requiring development permits for various stages of the project application. In this case, the Zoning Bylaw stipulates that a development permit is "not required for the maintenance and repair of public works services and utilities carried out by or on behalf of public authorities" but does not mention that initial development of such a project would be exempt from requiring a development permit. Further to this, the Bylaw states in section 5.2 that Public Uses are permitted in all zoning districts, which includes public utilities. Therefore, a privately-owned and operated utility (such as a renewable energy producer) may not have the same relaxations for which zoning districts this type of development might be permitted. If it were to meet this definition of a public utility, small utility-scale renewable power producers would not have additional zoning restrictions on which parcels of land might be zoned appropriately for that use.

Of note in this Bylaw is the mention of "Electrical Power Generation" as a discretionary use within the Souris Valley Centre Zoning district. This may imply electricity generation undertaken outside of the defined public utility definition provided, and may be the most appropriate definition for determining where renewable energy production might be located. However, a barrier to this kind of development in this district would be that this is a Discretionary Use and must obtain Council approval before it can be approved, which may provide an administrative barrier to this type of development.

While "renewable energy" was not mentioned within the Zoning Bylaw document, "solar" is mentioned once. Section 5.1.8 Environmental Protection Standards pertain to acceptable levels of nuisance caused by a development. Solar panels or "other energy conservation features on the exterior of a building" are mentioned as being exempt from contributing to a "glare" nuisance. This implies that solar panels in association to a principal use on a building site (panels on an existing structure) would be permitted. Since solar panels are not mentioned anywhere else within the document, there are relatively few regulatory standards and administrative direction for any form of renewable energy production.

8.2.3 Potential Land Use Barriers to Renewable Energy Development

One of the limitations to the potential development of renewable energy in the City of Weyburn comes from the definition of "Public Utility" within the Zoning Bylaw. The Bylaw specifies that a utility must be owned or operated by the City, or a corporation under federal or provincial statute. This may provide an opportunity if the municipality were interested in owning and developing a renewable energy project. However, it is more than likely that this provision would make it difficult for an independent renewable energy developer to argue that they are a public utility. This could make it difficult for the municipality to determine how to manage a renewable energy land use application. Another identified barrier is that 'Electrical Power

Generation' is listed as a Discretionary Use within one zoning district. It is unclear whether renewable energy generation would be considered as a Discretionary Use at this location, but the additional hurdle of obtaining discretionary use approval may also provide a barrier. Outside of specific barriers from existing Zoning Bylaw interpretations, the absence of direction in managing applications for renewable energy as a land use is also a barrier.

8.3 Town Municipality: Town of Kindersley

8.3.1 Land Use Planning Documents

The Town of Kindersley has an Official Community Plan and corresponding Zoning Bylaw. Both documents were first created in April 2014 and have been amended to reflect the community's wishes since then. The Official Community Plan document review evaluated the document with amendments up to and including May 2019, whereas the Zoning Bylaw document was reviewed with amendments up to and including July 2019.

The policies outlined within the Official Community Plan address the need for future land use planning within the municipality as well as other matters "related to its physical, social and economic development" (Town of Kindersley, 2014). The document outlines the broad goals pertaining to future land use within the municipality. These goals include general support for economic development, ensuring that development is directed in a way that is "innovative and sustainable" and "encourages the provision of an adequate supply of developable land to meet existing and future market demands for residential, commercial and industrial uses" (ibid). It is mentioned that this OCP is meant to provide approximately 20 years of future growth and development direction within the community.

8.3.2 Results of Document Analysis

8.3.2.1 Town of Kindersley

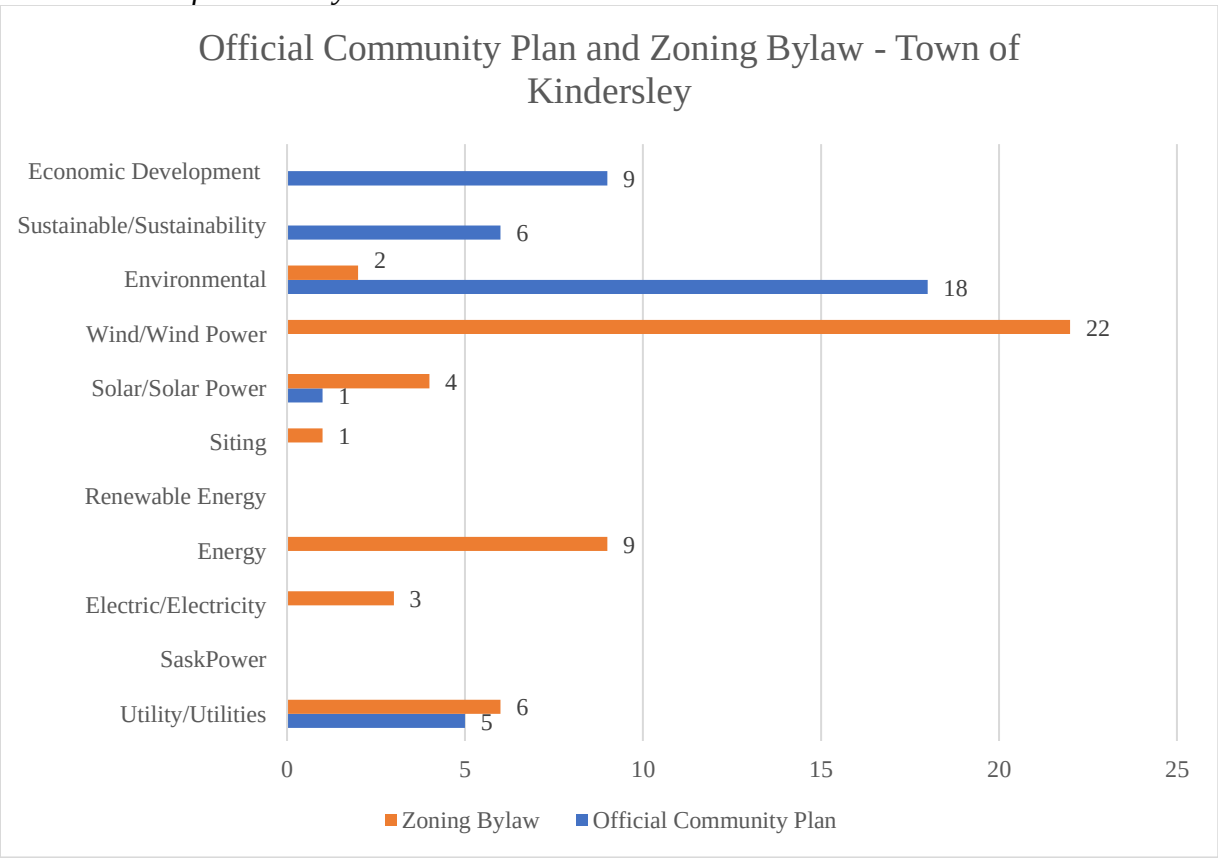

Figure 8.2: Official Community Plan and Zoning Bylaw - Town of Kindersley

The most prevalent words within the Official Community Plan were "Environment"/"Environmental" (18) followed by "Economic Development" (9). "Solar" is mentioned once within the OCP. Within the Zoning Bylaw, "wind" is mentioned 22 times, "energy" 9 and "utilities" 6 times.

Based on the word search for the land use planning documents for this community, some general trends pertaining to renewable energy development can be observed. Generally, the Official Community Plan outlines some broad policy objectives that aim to provide for environmental sustainability within the community, but has limited goals that include renewable energy provisions for future growth. There are broad objectives and planning goals mention environmental sustainability and the protection of environmentally-sensitive areas. These goals are captured within the "Planning Goals" for the Town within goal eight ("To ensure that the Town's current and future infrastructure requirements are planned and developed in a manner which facilitates growth in an environmentally and financially sustainable manner"); and goal eleven ("To protect natural resources and environmentally sensitive areas for the benefit of current and future generations"). Both of these planning goals are consistent with provincial legislation.

The specific mention of solar development occurs as part of Objective 3.1.1.4 which outlines the need for the community to "ensure that new residential neighbourhoods are designed in a manner which provides a high-quality living environment and a range of housing options" while specifically mentioning further that "the design of new neighbourhoods should consider

passive and active solar opportunities." Since these potential solar opportunities are not further defined within this land use document, it can be interpreted as a broad goal for considering future development growth, but may be limited to residentially-zoned areas. Generally, the Official Community Plan offers some broad policies and goals that support environmentalism and sustainability regarding general infrastructure within the Town. There is some effort to encourage passive and active solar opportunities, but this is written in conjunction with new residential neighbourhoods only, and does not necessarily support solar development beyond future residentially-zoned land areas.

The regulatory Zoning Bylaw document provides more detail regarding how the community will execute the general goals presented within their Official Community Plan. Definitions are an important aspect of Zoning Bylaws, and the definition of a "public utility" is included within this document. In this case, a public utility is defined as "a government, municipality or corporation under Federal or Provincial statute which operates a public work" (Town of Kindersley, 2014) which likely would only apply to provincial Crown energy providers like SaskPower, and not apply to independent renewable energy providers. As a result, public utilities enjoy some relaxations in development permit applications, and section 3.2.2 outlines that a development permit is not required for the maintenance of a public work by the municipality or a public utility. This may provide some flexibility for a public utility, but likely would not apply to independent renewable energy producers. One interesting definition of note is that of a Public Work, which includes "systems for the production, distribution or transmission of electricity." While the construction of a new public utility was not exempt from obtaining a development permit, the construction of a public work by the municipality does not require a development permit as per 3.2.2.2 (2) of the Bylaw. This creates an interesting scenario where a renewable energy production facility could potentially be exempt from requiring a development permit if it is owned by the municipality.

The Zoning Bylaw also provides specific requirements for both wind and solar power production as either a principal use on a site, and as an accessory use. While solar power is not mentioned as thoroughly within the document as wind energy facilities, it makes an appearance within the General Regulations in Section 4, and within the Future Urban Development Zoning District Section within Section 6. Within Section 4, solar collectors are mentioned first within the height restrictions in 4.4.1 (1) where they are exempted from height limitations. This implies that these collectors are an accessory use placed above the roof or an existing permitted structure, but not as a standalone use on a site. Solar collectors are next mentioned within Section 4.8.6 – Satellite Dishes, Solar Collectors and Wind Generators. This section pertains to the installation and operation of a free-standing solar collector and further provides some guidelines for their location within existing zoning districts. They are permitted in all zoning districts, but have further setback and height requirements if located within any C (commercial) or R (residential) district. This section still implies that these structures be singular, and associated with another permitted use and not as the principal use on a site. The only mention of a solar energy collection facility as a principle use on a site is located in Section 6 within the "Future Urban Development" (FUD) Zoning District, where it is listed as a Discretionary Use within this district. No further information pertaining to solar energy collection facilities is mentioned within this Zoning Bylaw document.

Wind Energy Facilities have clear siting requirements as well as a clear administrative procedure for reviewing applications. Wind Generators, like Solar Collectors, are included with Section 4.8.6 as a permitted use in all zoning districts subject to the restrictions mentioned above

for solar collectors within any residential or commercial district. Section 4.12 of the Zoning Bylaw outlines Special Regulations or Standards, where Wind Energy Facilities (one turbine) are located under 4.12.11. This section provides the specific development standards that apply in addition to any standards of a specific zoning district. This section states that Wind Energy Facilities only permit one turbine to be located at any location. Further to that restriction, wind energy facilities are only permitted in districts that list them as permitted or discretionary, with further restrictions for height (maximum of 50m); a maximum name plate capacity of 100kW; setback requirements from public road right of ways and railway rights; lesser separation considerations with the provision of an agreement between the developer of a wind turbine and the 'Non-Participating Noise Receptor.'

Section 3.10.4 of the Bylaw provides for administrative evaluation criteria to provide Council with some general information to determine the suitability of an application for Wind Energy Facilities within the Use-Specific Discretionary Use Evaluation Criteria. These provisions include: site plan considerations; showing what other development exists within a one-mile radius of the proposed site; confirmation of site ownership and any necessary lease or easement agreements; details for colour and markings in accordance with federal aviation requirements; and validation by a professional engineer of the structural integrity of the proposed tower and foundation or a description of required manufacturing specifications. These provisions are specific and provide very clear regulations for the development of wind energy.

Finally, "Wind Energy Facilities" are listed as a potential land use within the FUD Zoning district outlined in Table 6-16 where they are listed along with solar energy collection facilities as a discretionary use, subject to further minimum development requirements outlined within the table. As a result, the Zoning Bylaw outlines specific administrative processes for review of wind energy facilities specifically. This includes application requirements for a wind energy facility, including instructions for what must be included within a site plan, confirmation of ownership for the specific parcel, confirmation of federal or provincial permits and an engineering report for the structures themselves.

8.3.3 Potential Land Use Barriers to Renewable Energy Development

Similar to the City of Weyburn, the Town of Kindersley has some barriers due to the Zoning Bylaw's definition of a utility, as well as the potential barrier of successfully obtaining discretionary use approval. What sets Kindersley's land use planning documents apart from the City of Weyburn's and all other documents within this research is the inclusion of both administrative and siting provisions for renewable energy applications, specifically wind and to a lesser extent, solar. While these provisions are helpful, barriers still exist. Freestanding wind chargers are a permitted use in any zoning district subject to site-specific requirements, but only for a single structure. This may limit a potential larger scale renewable energy development within this community, particularly since wind projects are not allowed in the PGPP. Another limitation to Kindersley's Zoning Bylaw is that there are no specific standards for larger scale solar collector developments within the document.

8.4 Rural Municipality: Rural Municipality of Meota No. 468

8.4.1 Land Use Planning Documents

The Rural Municipality of Meota has an Official Community Plan (The RM of Meota No. 468 Official Community Plan) created in 2011 and a corresponding Zoning Bylaw, created in the same year. Both documents are actively amended as necessary. Document analysis was

based on the Zoning Bylaw which includes amendments up to and including June 27, 2018, and the Official Community Plan document review includes amendments up to and including April 7, 2017.

A community's future vision for growth and its values for land use can typically be found within an official community plan (OCP) and can assist in determining which land uses are included within the vision of the community's future. The RM of Meota specifically mentions its agricultural heritage, and sustainable environmental stewardship as formal values held by the community. The RM's future aspirations are outlined within the municipal goals of the community, which include the goal to "enhance and diversify the agricultural industry and economic base of the Municipality" as well as the goal to "protect prime agricultural areas and discourage conflicting uses" (The Rural Municipality of Meota No. 468 Official Community Plan, 2011). Overall, these planning documents are consistent with a municipality with an historically strong agricultural industry.

8.4.2 Results of Document Analysis

8.4.2.1 Rural Municipality of Meota

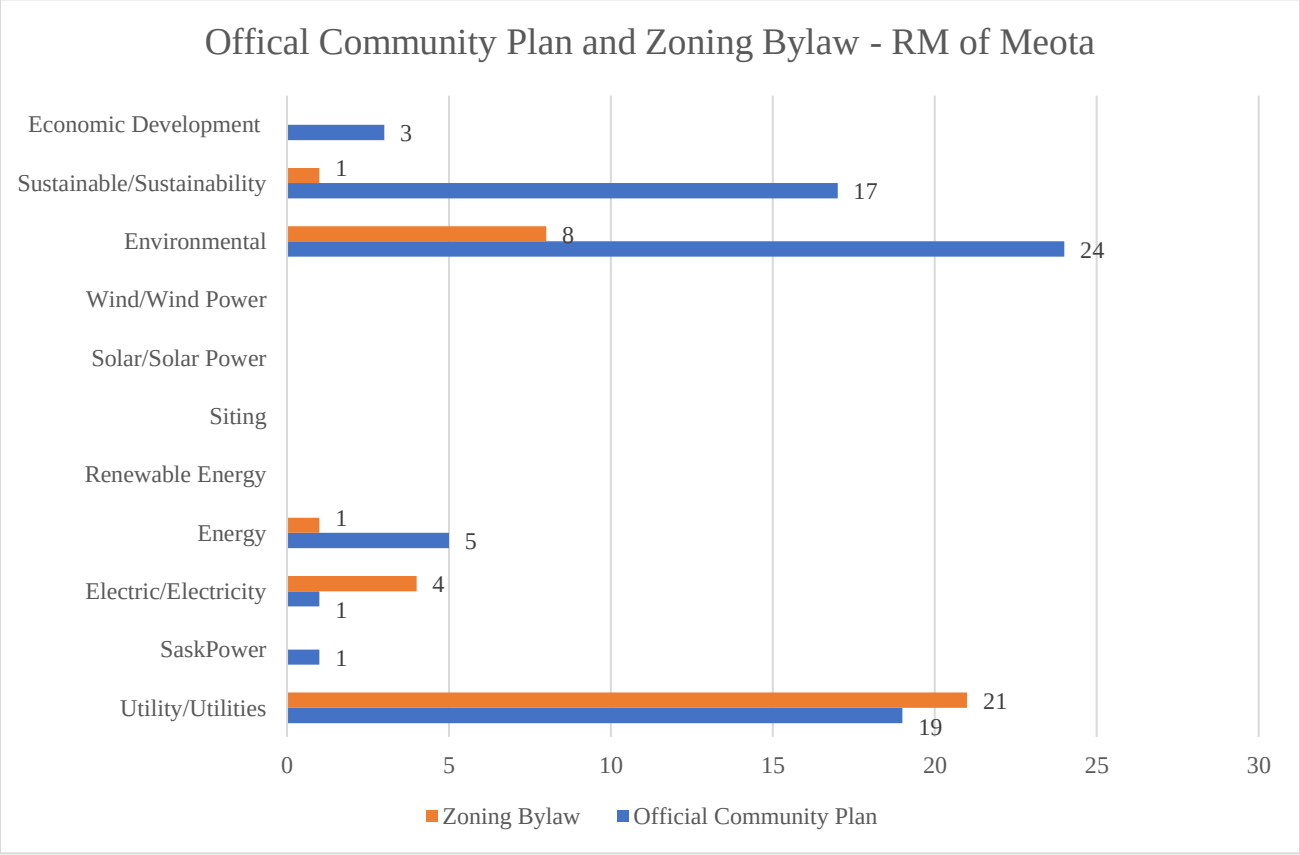

Figure 8.3: Official Community Plan and Zoning Bylaw - RM of Meota

Land Use Planning documents for the rural municipality of Meota include the following dominant trends: The Official Community Plan refers to "Environment"/" Environmental" 24 times, and "Utility"/"Utilities" 19 times. It makes no mention of renewable energy, solar or wind power. The Zoning Bylaw mentions "utilities" 21 times within the document, and "environment"/"environmental" 8 times.

Based on the research methods for document review, the Official Community Plan for the RM of Meota provides some broad policy statements that could support general sustainability and diverse land use within the future development of the community, and are outlined within the community's goals, values and objectives. The document outlines "Sustainable Environmental Stewardship" as one of its municipal values to inform future development. Municipal Goals are listed in Section 2.2 of this document, and the community aims to provide and maintain a "sound, economical, and sustainable system of transportation and utility infrastructure" as one of these broad municipal goals. This is further reflected in Section 8 – "Municipal Infrastructure and Utilities" where the document outlines the municipality's strong interest in the development and maintenance of utilities to accommodate the future needs and growth of the community. Goals for future residential development mention the encouragement of innovation in residential development that contributes to overall sustainability and energy efficiency in Section 5.2.7. This is further stated in section 7.2.3 in the Objectives section where future residential development is encouraged to promote energy efficiency, sustainability, and diverse land use. While these policy statements generally favour environmentalism and sustainability, they are generally focused on residential development.

However, the Official Community Plan document does not consider future land uses that might apply to renewable energy as either a primary or accessory use within the RM. There are no specific minimum development standards or siting processes that would provide direction for applicants interested in making a proposal for this type of development, nor are there any administrative processes that might assist administration in handling such a proposal. Considerable focus of the document rests on the current and historical prevalence of the agriculture industry, and the importance of this land use as the "backbone of the local economy." (The Rural Municipality of Meota, 2018). Supporting agribusiness is a goal stated within the document in section 4.1. It is further stated that future growth within the RM "will pay particular attention to agriculture and related services industries as a driving economic force within the Municipality" (Section 4.2.4). As a result, there are some general planning statements within this document that outline general goals for sustainability, but does not appear to consider renewable energy within its broad policies.

The RM of Meota has a corresponding Zoning Bylaw document that outlines the specific development standards based on zoning districts for the area. Based on the word search used to analyze this document, this document does not specifically mention renewable energy, solar or wind energy, but may provide some flexibility in interpretation of definitions that could support renewable energy development. Of note within this zoning bylaw is the flexible definition for what constitutes a "public utility" within the RM. Public utility is defined as "a government or private enterprise, which provides a service to the general public" within the community's Zoning Bylaw document.

8.4.3 Potential Land Use Barriers to Renewable Energy Development

Based on the document analysis, there are potentially several barriers to renewable energy development within the RM of Meota, but the main barrier may be a lack of policy or regulatory direction for this type of development. There is no administrative or siting direction within either land use planning document that might provide direction if the community is faced with a proposal for developing renewable energy on a site. The dominance of agriculture as a land use within policy documents may cause conflict if renewable energy development becomes a potential land use that could be in competition with the agricultural sector. Because the general

goals of the OCP are so focused on the agricultural sector, this could compel administration to favour this industry over a renewable energy development in order to maintain consistency with the OCP.

8.5 First Nations Community: Flying Dust First Nation

8.5.1 Land Use Planning Documents

The Flying Dust First Nation has a different land use management structure than all other cases provided within this research and therefore has different land use planning documents in use within the community. The First Nation has undergone the First Nation Land Management Regime Program (FNLM) which permits communities to opt out of certain sections of the *Indian Act* pertaining to land use, and develop documents specific to the vision of the community in order to inform future land use and growth. This process is administered under the *First Nations Land Management Act, 1999*. As a result, the community has developed two land use planning documents: The Flying Dust First Nation Land Use Plan 2017; and the Flying Dust First Nation Land Use Law 2017. These documents are used in tandem to inform decision-makers administering land use within the community.

8.5.2 Results of Document Analysis

8.5.3 Flying Dust First Nation

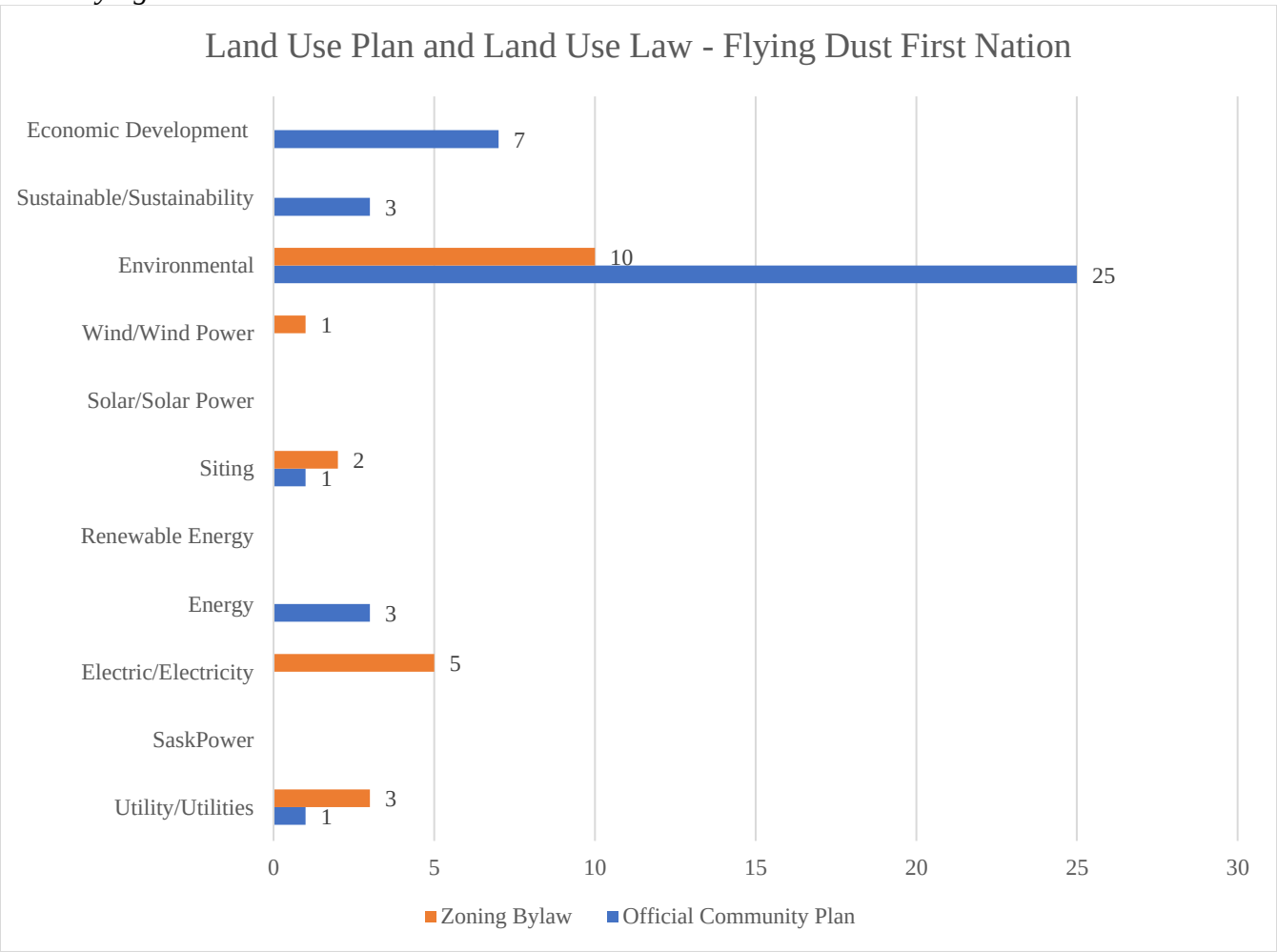

Figure 8.4: Land Use Plan and Land Use Law - Flying Dust First Nation

While the context of First Nations land use documents is different than the context of municipal land use planning documents, there is still use in examining them closely to tease out general themes and to compare them with the themes observed in municipal documents.

The Flying Dust First Nation's Land Use Plan resembles that of an Official Community Plan used by municipalities, and the Land Use Law is consistent with the site-specific regulations of a municipal Zoning Bylaw. The Land Use Plan provides general objectives and goals of the Flying Dust First Nation, and has general goals towards sustainability and energy efficiency, but has does not specifically mentioned renewable energy, solar, or wind energy. The value statements included on behalf of the community are largely focused on the sustainable use of land and the need to "protect the natural environment, preserve traditional values and connections to the land" (Flying Dust First Nation, 2017). Economic development is also a focus within the plan, particularly how development will align with the community's vision for growth. Ensuring that commercial land is available for development is one of the objectives stated within this plan. Agriculture is also listed as a priority for the First Nation.

The Land Use Law provides more specific direction for future land uses. There are no administrative or siting provisions made for renewable energy, solar or wind power specifically.

Similar to other communities, the definition of utility is quite broad, meaning "the use of land or buildings and facilities that distribute electricity, gas, water, and telephonic or television signals" (Flying Dust First Nation, 2017). This definition does not stipulate that the utility must be publicly-owned or operated like in many other municipal zoning bylaws. This could provide flexibility for future land uses that may include renewable energy production on sites.

8.5.4 Potential Land Use Barriers to Renewable Energy Development

There are no specific provisions made for developing renewable energy production, which could provide a barrier for this type of development.

Chapter 9: Discussion and Analysis

The purpose of this study is to explore why a community may wish to participate in the PGPP; to what extent policy layering and incoherence within the land use planning policy context may impact PGPP applications as an emerging type of land development; and finally, how land use planning documents at the local community level might impact PGPP applications. SaskPower has presented this program as an economic development opportunity and a means of meeting sustainability goals, and these goals are consistent, in theory, with the land use planning goals and values of existing communities that may be interested in the program. However, there are some inconsistencies between SaskPower's desire to see further private development of small renewable independent power producers, and how these developments might conflict with existing land use planning policies and local regulations that limit their siting and define their consistency with existing land uses. A legacy of policy incoherence within the provincial land use planning context provides further difficulties with this form of development within the province.

9.1 Community Participation in the PGPP

There are many reasons why a community might wish to participate in the PGPP. This research question was explored using literature review and thematic document analysis methods. This resulted in some interesting public messaging on behalf of SaskPower to present the PGPP. Through the thematic document analysis of individual community goal and value statements, some goals emerged that may also influence why a community may wish to participate in such a program.

9.1.1 PGPP Program Analysis: Opportunities for "Communities"

SaskPower's PGPP has been framed in public website documents and public statements as both an economic opportunity, and, to a lesser extent, a means of reducing GHG emissions and environmental impacts. SaskPower has framed the PGPP as a potential opportunity for those interested in larger community or business-scale renewable energy development. The PGPP is displayed prominently on SaskPower's website, and can be found on pages named "Generating Power as a Community or Business" (SaskPower, 2019). Further links within this webpage state "If you're a business or municipality, try identifying efficiencies if you're wanting to: Save money; and/or Reduce your power bill" followed by "Want to generate your own power? You've Got options: Use My Power; Sell My Power". Clicking on the link to "sell my power" provides a direct link to the PGPP and program details. As a result, those using the website are encouraged to think that as a community, municipality, or business, generating renewable energy to sell back to SaskPower is possible. This opportunity is presented from an economic perspective on the website. Prospective applicants viewing the website would see the focus on improving efficiencies or saving money in relation to the PGPP. There are no other reasons cited within the above webpages to encourage applicants to the program.

Other webpages available on SaskPower's website are more directly focused on the environmental impacts of energy production in Saskatchewan generally. A webpage titled "Creating a Cleaner Power Future" outlines the changing power industry, cites goals to reduce greenhouse gas emissions and to modernize the grid (SaskPower, 2019). Links to other webpages within the site also include the PGPP. This webpage states that "with new technology

there are more opportunities than ever. We offer generation programs that allow you to choose whether you want to: Generate power and use it for yourself; or Sell all the power you produce back to us. We all have a role to play in powering Saskatchewan; where do you fit in?" Options for "Community or Business" again links to the PGPP webpage (SaskPower, 2019).

News releases from the corporation are quick to point to the PGPP as a program that is contributing to the reduction of greenhouse gas emissions, and the current CEO of SaskPower has been quoted on the commitment of the utility to reduce greenhouse gas emissions by 40 percent over 2005 levels by 2030, stating that "the PGPP is one element that will help us reach that target" (SaskPower, 2019). Minister Dustin Duncan has also presented the program in association with Saskatchewan's climate plan, Prairie Resilience, saying that "taking steps to promote renewable and carbon-neutral projects is another clear sign that Saskatchewan takes the challenges of climate change seriously. The PGPP aligns with Saskatchewan's climate change plan, Prairie Resilience, by incentivizing customers to reduce carbon emissions and adding significant amounts of clean power to the grid" (SaskPower, 2019). The PGPP is primarily identified as the chance to participate in an economic opportunity for communities and businesses, and has been mentioned in association with climate change initiatives and existing climate change plans. As a result, communities may wish to participate in the PGPP in part due to how it is presented by SaskPower as a potential economic opportunity.

9.1.2 Community Land Use Planning Values and Instruments

Based on the thematic document review of the land use planning documents specific to each community, the communities had stated goals and values that typically trended towards either economic development or environmental sustainability. This is consistent given the inclusion of both goals within *The Statements of Provincial Interest.* These two values are also generally consistent with renewable energy development, but their dominance in the land use plans and zoning bylaws varied between the studied communities.

Generally, each community valued efficient use of resources and utilizing land as an input to trigger economic growth. This was particularly evident within the City of Weyburn, Town of Kindersley, and the RM of Meota. The Town of Kindersley's goals were more focused on the link between community goals of environmental sustainability and the economic and financial sustainability of the Town. The importance of attracting and retaining businesses and industry was a particularly strong component of the goals stated by all communities, but to a lesser extent within the Flying Dust First Nation land use plan. The values stated by the First Nation were substantially different in form than the values mentioned in the other planning documents, likely because they were created from different cultural and land use planning policy contexts. Many of the value statements within the Flying Dust First Nation land use plan focused on culture as a guiding force for the community to make its decisions. The importance of protecting the natural environment and to preserve traditional values and connections to the land were therefore expressly stated by that community.

9.1.3 Additional Community Participation Considerations and Potential Barriers

There are many barriers for a community interested in pursuing renewable energy development, particularly in association with the PGPP. To start, the scope of participation in this program and parameters of the "opportunity" may not be clear to prospective applicants. Participation in PGPP does not mean energy independence, as it is a contractual relationship between SaskPower and the applicant, and all energy produced must be sold to SaskPower

through this relationship. Therefore, communities will not gain the opportunity for independence from the conventional grid. Power storage is also not an aspect of this application. Communities will be no better off in terms of power independence through participation of this program.

Additionally, there is a narrow window for applications in order to apply for the PGPP. The first call for applications for the program began in 2018 and applications were accepted between November 15 and November 30 of 2018. This is a narrow time frame and applicants were required to meet with SaskPower well in advance of applying to the program to be considered. The level of expertise required for a successful application could certainly prove a limiting factor for participation, particularly for smaller communities with a limited planning staff. Another potential barrier may be the types of renewable energy eligible for the program. "Renewable" energy sources eligible for the program include solar, low-impact hydro, biomass/biogas and geothermal. Wind generation, though a common form of renewable energy, is not mentioned as an eligible energy source. There are also limits in the size of project eligible for the program that may not be large enough to create sufficient economic incentives. Projects with a maximum of 1 MW of production capacity are small but still utility-scale, which may not be worthwhile to many communities or enterprises. Finally, since these projects are not undertaken directly by the utility, local permitting could very well prove difficult, particularly given the short application window and the lack of emphasis on the level of difficulty an applicant might have for this type of development permit to be successful based on existing land use policies specific to the community.

While Sask Power presents the PGPP as an economic opportunity, and to some extent a means of meeting environmental goals, the reality is that the opportunity presented by SaskPower is that of chance, a possibility of a positive economic outcome. No guarantees are made, and instead the focus is on the potential economic opportunity to be involved in this program, possibly with the added potential for economic spinoffs. The goals and values stated by each of the representative communities studied generally favoured economic development, environmental sustainability, or both. These motivations are similar to the public messaging that SaskPower has utilized to present the PGPP and could be consistent with pursuing renewable energy development through the PGPP.

9.2 Community Land Use Planning and the PGPP

The final research question pertains to local land use planning documents and how PGPP applications might be impacted by the existing land use planning policy context. The thematic and word search document analysis of the individual representative communities were used to explore this question. Communities in particular who are interested in participation within the program are likely drawn to the economic opportunity, since that is how the program is introduced in SaskPower literature available online. Because this research focuses on communities, and the potential land use impacts of renewable energy development, it is important to outline the extent to which the program offers an opportunity, and the potential land use barriers a community might face.

Local communities in the form of municipalities or First Nations add another, less studied component of land use planning and the flexibility to manage emerging land uses. To begin, local land use planning documents differ depending on whether a community is governed by federal legislation (in the case of First Nations) or provincial legislation. These local governments have the right to create and administer local land use plans based on the shared goals and values of the community. This allows local and First Nations governments to have

control over the future land uses within the community, but can add another level of complication if an emerging use such as renewable energy production is proposed.

The sudden release of the PGPP from SaskPower created an incentive for renewable energy development in communities. The new program, focusing on communities and small utility-scale independent power producers, may not adequately consider the existing land use planning context, particularly at the local level. Utilizing land for renewable energy development is an emerging trend in Saskatchewan, and one that can be contentious at the local level of development. Introducing new developments before understanding local land use planning and its complexities could be an oversight on behalf of the provincial utility. The land use planning element is an important aspect to consider, particularly for municipalities and First Nations that have the right to administer their own land uses. SaskPower appears to be relying on independent power producers to develop a portion of provincial renewable energy while distancing itself from the regulatory land use hurdles that these power producers may face. For a program that is actively targeting communities and smaller enterprises, this may contribute to projects that cause tension at the local level, particularly if local planning regulations are not prepared to administer this emerging land use.

Since this type of development is new within the province, the land use planning context is not yet well understood. Speculative comments based on the assessment of the current land use planning legislative context in place are outlined below.

9.2.1 Renewable Energy Land Use Planning and SaskPower's Role as a Crown Corporation

Since Saskatchewan manages its energy through a Crown corporation with a monopoly over electricity generation, local land use planning for independent renewable energy development presents an opportunity to explore how incorporating new programs in one policy area may affect other policy areas. Introducing a new program where communities and the private sector are invited to participate in renewable energy development, may cause friction with other policy areas that otherwise did not normally interact. This may be the case with community or private renewable energy development and existing land use planning policies which did not anticipate energy development by actors other than the Crown corporation.

Generally speaking, renewable energy is not commonly managed within land use planning in Saskatchewan. All energy development within the province has historically been undertaken directly by SaskPower. As a result, there was likely no anticipated need to address its development in local community land use plans. A cross-section of strategic long-term planning documents and regulatory documents from each study area demonstrated that it is not common to include administrative or regulatory site-specific direction for the development of utility-scale renewable energy. One exception to this is the community of Kindersley, SK. The land use planning documents for this area provide a useable template for developing wind turbine energy and for administration to interpret applications for this land use within a specific zone. Generally, the other communities, including the Flying Dust First Nation, do not provide specific requirements or zones where any type of renewable energy development would be expressly permitted.

9.2.2 Renewable Energy Development and Saskatchewan's Land Use Planning Policy Context

Is Saskatchewan a special case when it comes to experiencing an emergence of renewable energy development as a land use? While only some other jurisdictions have public utilities with a monopoly over electricity generation that may seek to extend the development

opportunity of renewable energy to external communities and the private sector, all must consider the interaction of renewable energy development with the land use planning context.

Local permitting of any development, but particularly renewable energy land uses is still largely managed by existing land use planning policy regulations. There may be similarities across jurisdictions, even if the specific land use planning rules differ. Within the Canadian context, other provinces have managed to set reasonably cohesive expectations and general guiding documents to inform renewable energy development. These guiding documents can inform citizens and municipalities who may be interested in renewable energy development, and can provide suggestions for best practices and administrative procedures for broad siting recommendations. As noted in the literature review, Ontario was one such example of a province that had created a provincial guiding document.

The lack of guiding documents at the provincial level in Saskatchewan could be a result of oversight, or based on an assumption that renewable energy would not be a viable development since the creation of *The Planning and Development Act,* or *The Statements of Provincial Interest*. Certainly, the inclusion of an independent renewable energy producer program outside of SaskPower's development as a utility may not have been predicted at the time the provincial and federal documents were last visited. Additionally, the province may not have an interest in providing administrative or siting direction for this land use because the best use of land is site-specific and community-specific. However, the current state of land use planning within the province does not generally support renewable energy as a land use, which could mean that current and future development may have outgrown existing provincial legislation and municipal land use planning documents.

While the provincial legislation provides direction for each municipality to create their own land use planning documents, there are still large differences between municipalities and their own future development goals stated within their plans. There are also differences even within the same community between the OCP and Zoning Bylaw. All Official Community Plans can be interpreted to suggest broad acceptance of renewable energy in principle but the regulatory zoning bylaw may not be as supportive or provide any clear direction. In some cases, these documents may make it even more difficult for an applicant or the municipality itself to develop renewable energy.

There may be some flexibility to permit this type of development based on current land use planning documents within the representative communities. For example, definitions within the current Zoning Bylaw and Land Use Law documents may provide for unintended flexibility to define a "public utility". For example, the RM of Meota could have unintentionally opened the door for renewable energy development as a principal use. There may also be some flexibility for developing renewable energy as an accessory use at the individual level, as some communities have tried to include this type of development. This included provisions for solar or wind collectors as a permitted accessory use and relaxations on regulations related to height and glare. However, as a principal use on a site, only one community had made regulatory plans that included administrative and siting guidelines and outlined wind energy development as a discretionary use within a specific zoning district.

Based on the review of land use planning documents in the studied communities, it seems unlikely that a community can pursue renewable energy development without addressing land use constraints and their associated barriers. It will also be difficult for other actors, including private companies, to pursue this because of the land use challenges and differences in policy

and regulatory processes between communities, the legislative context and local land use policies.

9.2.3 Conflict with Local Community Development Goals

Another local land use consideration that emerged through this research process was the potential for land use conflicts at the local level, particularly where contrasting values may exist within communities. This tension between environmental sustainability and economic development is already noted within the values of community-level Official Community Plans, and accompanying provincial legislation. Because Saskatchewan has an established agricultural sector, most policies at the provincial and local level that support this industry are well-established. Introducing a new land use where the competition may be agriculturally-zoned land may result in a values conflict and influence future land decisions. The RM of Meota is a perfect example of this potential for value clashes. The OCP document outlines the general values and goals of the community, and the desire to maintain agriculture as the economic base of the community was a stated goal of the community. This plan also specifically mentioned a goal to "protect prime agricultural areas and discourage conflicting uses." These statements would imply a strong community desire to maintain existing land uses and demonstrates that the community may not be open to new land uses, particularly if they may have an impact on the agricultural values and history of the community.

SaskPower has introduced a potential value clash if their PGPP encourages renewable energy development as a competitive land use. There is a legitimate fear that the introduction of this form of land use development may encourage wasteful land uses and potentially result in the conversion of farmland for this purpose. It is certainly apparent in many Official Community Plans within the province, including those under review in this research, that agriculture is a treasured economic activity and valued by communities. This could be more reason for the Government of Saskatchewan to provide formal policy direction for renewable energy land use planning in local communities. Ensuring that these siting decisions are considered within planning processes that include meaningful public consultation can mean less conflict in the future. Working with the community to identify locations that minimize potential conflicts and do not impact agricultural activity would provide clarity for future development decisions and elevate the community discourse on these emerging land uses. Outlining appropriate areas, and leveraging sites that may otherwise be deemed undevelopable, such as contaminated sites, would be a logical inclusion to the community planning process. Establishing siting requirements such as setbacks, height restrictions, and site access control would further help to minimize local conflict later on. Renewable energy as a land use appears to be expanding within the province generally, so managing this land use now or at least providing the adequate tools for communities to manage these applications is a logical step.

9.3 Incoherence, Integration and Policy Layering within the Land Use Policy Context

To address the second research question pertaining to policy layering and incoherence within the context of land use planning policy, literature review and thematic document analysis methods were utilized. While there is evidence of policy incoherence, and a lack of vertical integration between levels of government, there is less compelling evidence that policy layering is taking place.

9.3.1 Vertical Integration and Policy Incoherence within the Land Use Policy Context

Evidence of the lack of vertical integration of land use policy can be identified from the federal to the local community level in Saskatchewan. At the federal level, there is little done to regulate land use planning since this largely falls under provincial purview. Certainly, policies can be introduced that might influence land use planning at the provincial or even community level, but the policies still must be considered by the provincial government for inclusion. An example of this includes the Pan-Canadian Framework for Clean Growth and Climate Change. This federal initiative has the potential to influence how land use planning is conducted, but the framework is not specifically meant to manage land use planning. Because First Nations are governed by federal legislation, there is an additional lack of consistency between how land is managed between communities in the same province, and even between First Nations in the same province, depending on if the First Nation is governed by the *First Nations Land Management Act* or the *Indian Act*. There is therefore no centralized federal means of managing land use planning, or means of consolidating land use goals for the future.

Because the provinces are all independently responsible for managing land use planning within their jurisdictions, there is no need for coherence amongst provinces, and land use goals can be tailored to the specific context of each province. As has been demonstrated, Saskatchewan has had a legacy of resource development and agriculture within the province that had dominated discussions of land use planning. The provincial land use planning context was criticized by Martens, et al. (Martens, McNutt, & Rayner, 2015) for its incoherence. With unclear policy goals and instruments, the state of land use planning within the province is difficult to navigate. Changes made to the *Planning & Development Act* in 2006-2007 and the addition of *The Statements of Provincial Interest* in 2013 were made in an effort to provide more coherence and certainty in provincial land use planning, and introduced sustainability goals, and economic development goals at the local and regional level, and also included provisions for the inclusion of First Nations in provincial land use planning.

The addition of these additional land use planning goals are evident through their inclusion in recent Official Community Plan documents at the local community level. Goals outlining additional environmental sustainability goals were noted within these planning documents, but the corresponding regulatory means of accomplishing them through zoning bylaw regulations and their settings were unclear. Overall, the two general trends found within the goals and vision statements within planning documents provided good context for understanding the values of the community, but the accompanying regulatory documents did not always demonstrate the same values within the zoning regulations. This could potentially cause further confusion for future uses like renewable energy development, and may impact how applications for such development might be interpreted by each community.

It is difficult to argue that these changes resulted in a paradigmatic shift in provincial land use planning. The introduction of these new elements into land use planning did not necessarily impact the existing context, or the overarching goals of land use planning. However, the new elements contribute to incoherence and a lack of policy instruments to execute the environmental goals present within local land use plans. The addition of these new goals into land use planning policies may have been intended to streamline how land use planning is done within the province, but the effect is one where new goals are introduced in as few provincial documents as possible, and local municipalities are left to ensure their adherence to these goals.

Incoherence within and across provincial, federal and municipal government pertaining to land use contributes to a difficult context for communities to navigate. This is particularly

difficult when pursuing a renewable energy project development because of the unclear policy context that a community may face when contemplating this form of land use development. Local land use policies are an understudied component of renewable energy development. Policy incoherence and a lack of vertical integration between different layers of government pertaining to land use planning create potential additional hurdles for communities interested in participating in the PGPP.

9.3.2 Policy Layering within the Land Use Policy Context

While initial study of the subject area demonstrated the potential for policy layering to exist and influence the land use planning policy context, several key features of policy layering are absent.

The concept of policy layering as introduced by Rayner and Howlett (2009) is explored in the literature review (see Chapter 2). This phenomenon is defined as policy additions that are made without altering existing elements of the policy, which tends to occur because the entrenched interests of those older elements defend the existing policy that had benefitted them. This would result in policy elements that are costly and complex to administer, but also elements that have counter-intuitive instrument mixes and incoherent goals. While portions of this theory seem to apply well to the land use planning policy context in Saskatchewan, it does not completely apply, mostly due to the absence of organized, entrenched interests. While agricultural and resource development interests within the province are a major component of the existing provincial land use planning context, these interests were never really at risk with the recent additions and changes to land use policy, particularly changes within the *Statements of Provincial Interest*.

Chapter 10: Conclusion

10.1 Introduction

To recapitulate, the objective of this thesis is to profile the growing importance of the relationship between energy production and land use within the province of Saskatchewan, particularly in light of emerging SaskPower programs such as the PGPP. This was accomplished by investigating three key research questions: why might a community wish to participate in the PGPP; to what extent might policy layering or policy incoherence within land use planning policy impact PGPP applications as an emerging land use; and, how might land use planning documents at the local community level impact PGPP applications?

There are both academic and practical components of the results. In terms of practice, communities are likely to consider participation in the PGPP for reasons that may resonate with two dominant values found amongst goals and values stated within Official Community Plan documents specific to each community. Efforts on behalf of SaskPower to present the PGPP as a potential economic opportunity for communities and private enterprise may also affect why communities may be interested in participating within such a program. However, the local land use planning context within individual communities may face additional regulatory challenges due to a general lack of appropriate existing rules and processes to manage renewable energy as an emerging land use. The practical land use planning component of this should be further explored to determine if the existing land use planning policy context can appropriately manage this emerging use. The academic element of the research explored the theories of policy layering and policy incoherence within Saskatchewan's land use planning policy context. The initial hypothesis that the provincial land use planning context features policy layering was not supported by the evidence. Instead, the evidence illuminated components of policy incoherence and a lack of vertical integration between levels of government.

This thesis has revealed that the context for renewable energy development at the local scale within Saskatchewan provides an interesting example of policy incoherence and may require further thought as an emerging land use issue. While all forms of energy development require some land area for development, renewable energy can be more land-intensive than other conventional forms of energy such as coal and natural gas. Renewable energy development is an emerging land use that will continue to be in competition with other established land uses such as agriculture, residential and resource-extraction based industry, which presents a potential land use conflict for future development, particularly in the province of Saskatchewan.

Increased pressure to meet international emissions targets and intensified interest in renewable energy has encouraged the provincial utility to set goals for meeting renewable energy goals, but these goals cannot be met without including the private sector.

10.2 Renewable Energy 'Opportunity' of the PGPP for Communities

The PGPP is one program that is meant to address growing interest in renewable energy development by independent power producers within the context of a Crown corporation monopoly. This program has been presented by SaskPower as an opportunity to communities. This opportunity is largely focused on the potential for economic development through participation in the program, but the utility does mention the program in association with its commitment to the environment. Study of local land use planning documents revealed that economic development and sustainability goals were present within the four communities' stated

future development goals and values, but had different importance based on the individual community. The prevalence of these values and goals are consistent with how the PGPP has been presented, and either economic development or sustainability values could be congruent with participation in the PGPP, and interest in renewable energy development more broadly.

While the PGPP is just one program offered through SaskPower, it is a marked departure from the utility's control over all aspects of power production, and may result in future opportunities for community and private enterprise development of renewable energy. The program's introduction as an opportunity for communities is puzzling, and does not adequately take other existing policy contexts into consideration, particularly its inconsistencies with the existing provincial land use policy context. While communities might be incentivized to participate in this program because it is presented as an economic opportunity, participation in the program requires a series of approvals, including approval at the community level through existing land use planning regulations and processes.

10.3 Land Use Policy Context in Saskatchewan

The existing land use planning policy context is one that is complex, with multiple levels of government managing differing values and interests. Through this research, the concept of policy incoherence as introduced by Rayner and Howlett (2009) was explored within the context of provincial land use planning. One major component of this incoherence may be the lack of vertical integration between levels of government, particularly given the complexities of federalism and the differing legislative contexts between provincial municipalities and First Nations communities. Navigating the differences between First Nations communities land use plans, whether they are governed by the Indian Act or they have created plans under the First Nations Land Management Plan, creates key management differences and regulatory processes for land development. While provincial municipalities should have similar components to their land use plans, given that they are created and reviewed under the same provincial legislation, there are still marked differences between the values and regulatory context of each community.

Policy incoherence within land use planning for municipalities has also been demonstrated by an inconsistency between goals and instruments. Even goals at the provincial level are often at odds with one another, and do not always incorporate appropriate integration within the existing context, nor include appropriate instruments all the way down to the local level to accomplish these overarching goals. Land use planning for provincial municipalities is largely under provincial legislation including *The Planning and Development Act*, and *The Statements of Provincial Interest*. Provincial policy goals established within *The Statements of Provincial Interest* include an array of topics that are in the province's "best interest" and have recently formally included environmental sustainability goals and encouraging engagement with First Nations. These goals have been added to the existing established land use goals pertaining to specific industries of agriculture, and the importance of economic development. While the research outlined that the representative communities under review reflected all of these planning goals within their Official Community Plans and broad Land Use Plans, the means of implementing them through the regulatory bylaw documents was often unclear. The planning goals therefore were not always actionable with the available instruments .

This research initially hypothesized the presence of policy layering as introduced by Thelen (2003) and Hacker (2005) which explains how the process of policy instruments and programs being incrementally stacked on top of one another cumulates in an arrangement of policy instruments that are disorganized and costly to manage, while also proving difficult to

change based on the well-entrenched interests that defend them. Some elements of policy layering are evident in the Saskatchewan case, particularly in regards to the incremental stacking of policy instruments over time, the lack of well-organized and entrenched interests defending this regime, as emphasized by Martens and colleagues (2015), is not observed within the context of land use planning in Saskatchewan. It appears that changes to the land use planning context did not place existing interests such as resource development or agricultural interests at risk. That being said, it will be interesting to monitor the emergence of new land uses within the province, such as renewable energy development. This will be especially interesting if this emerging land use expands beyond a small program such as the PGPP, and its development becomes a more pressing land conflict issue.

10.4 Renewable Energy Readiness in Local Community Land Use Plans

This research focused on document analysis as a means of demonstrating the existing land use planning regulations that exist at the local community level within Saskatchewan. Four representative communities were chosen to review the existing state of land use planning documents and their compatibility with potential renewable energy development. These communities are the City of Weyburn, the Town of Kindersley, the Rural Municipality of Meota, and the Flying Dust First Nation. The land use planning approval required for development is based on local land use plans that outline a community's future vision for growth and the specific regulatory land uses that are permitted within certain zones of the community. Land use approval in the form of a development permit will largely be granted within the scope of local area planning regulations that may not have anticipated renewable energy as a potential land use within the community.

While broad planning visions and values outlined by many communities might imply that a renewable energy development may be welcomed, the regulatory structure rarely mentions renewable energy as a land use, let alone sets standards for development, or even how an administration might process such an application. The Town of Kindersley was the only community to have established renewable energy as a potential emerging land use, and provided some standards for siting and administrative processes for such applications. However, these provisions were mostly focused on wind turbine energy production, with little mention of other technologies such as solar. Establishing land use planning standards for renewable energy siting now could ensure that this land use is properly managed while mitigating the likelihood of local conflict in the future. Based on the document review of the communities, many had mentioned the importance of agriculture as a land use, so avoiding the unnecessary conversion of agricultural land is understandably important to these communities and to the province.

It is important to reiterate the importance of the provincial Crown corporation and its role in energy development within the province. Since all aspects of energy development have been historically managed by the SaskPower, many communities would not have anticipated energy development as a land use that would be developed by a private entity, or directly by a community through the PGPP. If this type of program is expanded in the future, considerations for renewable energy development should be better integrated within the community planning process. Creating clear guidelines and siting requirements is a logical step that other provinces have accomplished, and may be a worthwhile exercise for Saskatchewan given the unclear nature of its land use planning policy context.

Analysis of the PGPP and land use planning policy context through literature and document review have shown that it is possible to understand the new development of renewable energy as

a land use through the PGPP, it is just not an obvious component of development. It is suggested that addressing this incoherent framework now could help to avoid local conflict as a result of this development in the future.

Generally, whenever a community or a private sector corporation is interested in developing a renewable energy project, either on their own or in partnership with others, there are significant local land use planning considerations. Regardless of why communities may want to participate in the PGPP, there are a lack of early planning resources for renewable energy development. Land use policies change dramatically between communities, and there is little to no provincial or federal direction for updating or amending local policy documents to better adjudicate and site potential applications for renewable energy production. The emergence of this land use has become more prevalent as external pressures for expanding renewable energy impact the province. The introduction of programs for utility-scale renewable energy production has introduced a new land use competing amongst a status quo mix of established land uses. It is largely left up to local land use plans to determine where these new production facilities will go and how they will interact with existing land uses. Communities interested in participating in this new form of development must navigate a challenging, but not impossible regulatory land use context of new and established policies.

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Appendix A – Methods

Representative Community Selection Criteria:

The following selection criteria was determined to inform the selection of representative communities chosen for further research.

1. Communities must not operate a utility service separate from SaskPower (City of Saskatoon and the City of Swift Current are not eligible).
2. Communities must be generally located within SaskPower's "Power Generation Partner Program Priority Location Map 2019" (see Appendix 3) as these communities have a greater chance of being accepted into the PGPP as outlined by SaskPower.
3. Communities must have publicly-available land use planning policies in place, reviewed by either provincial or federal jurisdictions as appropriate. These include Official Community Plans and Zoning Bylaws for provincially-regulated communities, and land use plans that meet requirements within the First Nations Land Management Act for First Nations communities.
4. Land-use planning policies must be reasonably current, therefore no communities with land-use planning policies created before the year 2000 were reviewed.
5. Community types include one of the following to capture broad representative forms of communities that regulate their own land use planning within the province of Saskatchewan: First Nations community, City municipality, Town municipality, and Rural Municipality.
6. The discretion of the researcher was utilized in order to capture the appropriateness for case study based on the above criteria.

Document Analysis Protocol for Review of Land Use Planning Documents

Using primary and secondary sources, data was collected to assess any overarching themes found within the data. Triangulation between sources and additional research is preferred to infer quality information, and to ensure the validity of printed media which may be found online. It is assumed that there may be selection bias in collecting sources based on the availability and existing knowledge of the researcher. An effort to cross-reference sources and source data has been made whenever possible to avoid further selection bias.

Positive Benefits of Document Analysis in Research

Bowen has outlined several positive benefits of document analysis in research (Bowen G. , 2009). Some of these benefits include the following:

• Efficient method: Document analysis is an efficient research method because it is less time-consuming. It requires data selection, instead of data collection.

• Availability: Documents are largely available in the public domain. Merriam has argued that locating public records is limited only by one's imagination and industriousness (Merriam, 1988).

• Cost-effectiveness: Document analysis can be cost-effective, particularly when the collecting new data is not possible.

• Lack of obtrusiveness and reactivity: Documents are 'unobtrusive' and 'non-reactive'—that is, they are unaffected by the research process (Bowen G. , 2009). Therefore, document analysis

counters the concerns related to reflexivity (or the lack of it) inherent in other qualitative research methods.
• Stability: Documents are stable, and an investigator's presence does not alter what is being studied (Merriam, 1988).
• Exactness: The inclusion of exact names, references, and details of events makes documents advantageous in the research process (Yin, 1994).
• Coverage: Documents provide broad coverage; they cover a long span of time, many events, and many settings (Yin, 1994).

Document Analysis Strategy

Three stages of document analysis were utilized within this research pertaining to the review of land use planning documents:

1. Skimming – superficial examination of documents. This method was demonstrated using a word search methodology to determine the frequency of terms within each document. This method provided a general idea of which land use planning documents had made provisions for renewable energy development, and determined the community's broad goals towards sustainability and economic development based on the frequency of use of these terms within their strategic and regulatory planning documents.
2. Reading – thorough examination. The next stage of document analysis was to perform a thorough reading of the documents under review. This provided a more thorough context for determining the meaning and details provided within the land use planning documents. Specific focus on the specific values and strategic future planning goals were noted by the researcher.
3. Interpretation – the combination of efforts from the skimming word search methodology and the thorough examination through reading of the documents were then put together to infer both the content and thematic analysis of documents.

Skimming – Word Search Review of Documents

Documents Reviewed

Documents were scanned based on a word search to identify specific policy provisions for renewable energy production within municipalities. The documents that were reviewed based on this word search include:

- The First Nations Land Management Act S.C. 1999, c.24
- The Planning & Development Act, 2007
- The Statements of Provincial Interest Regulations, 2014
- The City of Weyburn Official Community Plan Bylaw 2003-2098
- The City of Weyburn Zoning Bylaw No. 2003-2099
- The Town of Kindersley Official Community Plan Bylaw 03-14
- The Town of Kindersley Zoning Bylaw No. 04-14
- The Rural Municipality of Meota No. 468 Official Community Plan (Schedule "A" to Bylaw No. 01/2011)
- The Rural Municipality of Meota Zoning Bylaw No. 02/2011 (Schedule "B" to Bylaw No. 01/2011)
- The Flying Dust First Nation Land Use Plan (2017)
- The Flying Dust First Nation Land Use Law (2017)

Key Word Selection in Document Review

Before analysing the land use planning documents for each chosen representative community, a series of key words were identified to direct the research. These were identified in order to capture two important aspects of this research. The first was to find the prevalence of certain ideologies within each community, to provide some context for how seriously the community might value either economic or sustainable values. The second was to identify the specific mention of renewable energy development in either a general sense or for specific development. The key words chosen for review include the following:

- Utility/Utilities
- SaskPower
- Electric/ity
- Energy
- Renewable
- Siting
- Solar/Solar Power
- Wind/Wind Power
- Environment/al
- Sustainable/ity
- Economic Development

Each document was then reviewed in PDF format using the PDF document word-finder for each key word. Each instance of the word within the document was recorded within its context, with the corresponding page and section number noted. The researchers' comments were then noted if the section was relevant to the research. After a full word search review was completed, the results were then synthesized for relevance and additional notes were generated for each document reviewed.

Thematic Analysis of Documents

Thematic analysis is a form of pattern recognition within data, with emerging themes becoming the categories for analysis. This method was utilized within this research to accomplish a focused re-reading and review of the data included within the land use planning documents. General notes from the skimming and reading stages of document analysis were further grouped into categories to create a series of themes for review. This method has been utilized in other research contexts to analyse organizational documents in order to capture overarching themes.

Some specific criteria generated before the document analysis took place established the following criteria specific to renewable energy development:

1. General Policy Consideration of Renewable Energy Development: the document includes content that could generally be consistent with the inclusion of renewable energy development as a land use within the community. This could be demonstrated by one or more of the following components: climate change targets, renewable energy strategies, statements of environmental importance to the community, or environmental values stated within OCP documents.
2. Specific Site Standards for Solar Development (Principle Use): The document provided specific development standards for solar energy production as the principle land use of a

particular site. This was demonstrated by any of the following: the inclusion of a definition for solar energy production facilities; clarification on which areas this use may be permitted or discretionary; site development standards including height, setbacks and separation distances and associated site-specific requirements necessary for approval.

3. Specific Site Requirements for Solar Development (Accessory Use): The document demonstrated some site-specific requirements single solar collectors, but implies a single collector in association with a permitted use, typically with requirements pertaining to height, setbacks, or glare considerations.
4. Specific Site Standards for Wind Development (Principle Use): The document provided specific development standards for wind energy production as the principle land use of a particular site. This was demonstrated by any of the following: the inclusion of a definition for wind energy production facilities; clarification on which areas this use may be permitted or discretionary; site development standards including height, setbacks and separation distances and associated site-specific requirements necessary for approval.
5. Specific Site Standards for Wind Development (Accessory Use): The document demonstrated some site-specific requirements for single wind chargers, but implies a single collector in association with a permitted use (such as existing residential), typically with requirements pertaining to height, setbacks, or separation distances.
6. Administrative Processes for Renewable Energy Application Reviews: The document demonstrates an administrative process for reviewing applications specific to renewable energy production, and includes direction for applicants in regards to application requirements; outline which zoning districts this use would be permitted or discretionary; and what considerations Council would be making for Discretionary use decisions.

Review of documents was then categorized into themes recognized by the above criteria in order to synthesize the findings into a table format.

Appendix B – SaskPower PGPP

B.1 – Online Communication of PGPP

SaskPower
Powering our future®

Generating Power as a Community or Business

If you're a business or municipality, try identifying efficiencies if you're wanting to:

Save Money; and/or

Reduce your power bill

You'll see cost savings sooner than you will recover your investment in generation equipment.

Take our online energy assessment for businesses. This allows you to pinpoint areas where you can save money while reducing your environmental impact.

Already did an assessment? Want to generate your own power?

You've got options:

USE MY POWER

SELL MY POWER

SaskPower
Powering our future®

Selling the Power You Make

Our Power Generation Partner Program allows you to make power – then sell it to us.

2019 Program Details

We'll be accepting up to 35 MW of projects into the program.

- 10 MW will be reserved for renewable projects; and
- 25 MW will be reserved for carbon neutral non-renewables.

Once you choose your energy source, we'll connect you to the grid. Any power going in and out is tracked for billing purposes.
Here are your generation options:

SELLING FLARE GAS POWER

SELLING GEOTHERMAL POWER

SELLING BIOMASS/ BIOGAS POWER

SELLING LOW-IMPACT HYDRO POWER

SELLING WASTE HEAT RECOVERY POWER

B.2 PGPP Contributes to GHG Emissions Reductions

SaskPower
Powering our future®

Creating a Cleaner Power Future

The power industry's changing – and we are too.

We have a vision of a shared cleaner energy future. This means reducing emissions by adding more renewable power to our supply mix. Our goal - to reduce our greenhouse gas emissions from 2005 levels by 40 per cent by 2030.

Paving the Way

To bring our shared vision to life, we'll need to modernize the grid. Not only will this support our renewable energy goals but pave the way for innovation such as:

Power Storage

Electric Vehicles

Customer Generation

Our Shared Journey

The easiest way to lower emissions is to use less power.

Doing your part and being more efficient not only saves you money but helps the environment.

It also lowers the demand on our system. If less power's needed, we don't have to build as many new facilities. This allows us to focus on getting power to customers, when and where they need it.

When it comes to saving power at home or at your business – you've got options. We've got tips to help you do this.

We're in this Together

With new technology there are more opportunities than ever. We offer generation programs that allow you to choose whether you want to:

- Generate power and use it for yourself; or
- Sell all the power you produce back to us.

We all have a role to play in powering Saskatchewan; where do you fit in?

Appendix C: PGPP Priority Location Map

Power Generation Partner Program

Priority Location Map

2019

This map provides a view of the 25 kV (kilovolt) distribution feeders identified by SaskPower to be the highest priority for PGPP Project interconnection.

Feeders shown in orange are connected to Priority 1 Feeder - Planned Substations. Projects connecting to one of these may be eligible as a Priority 1 Project.

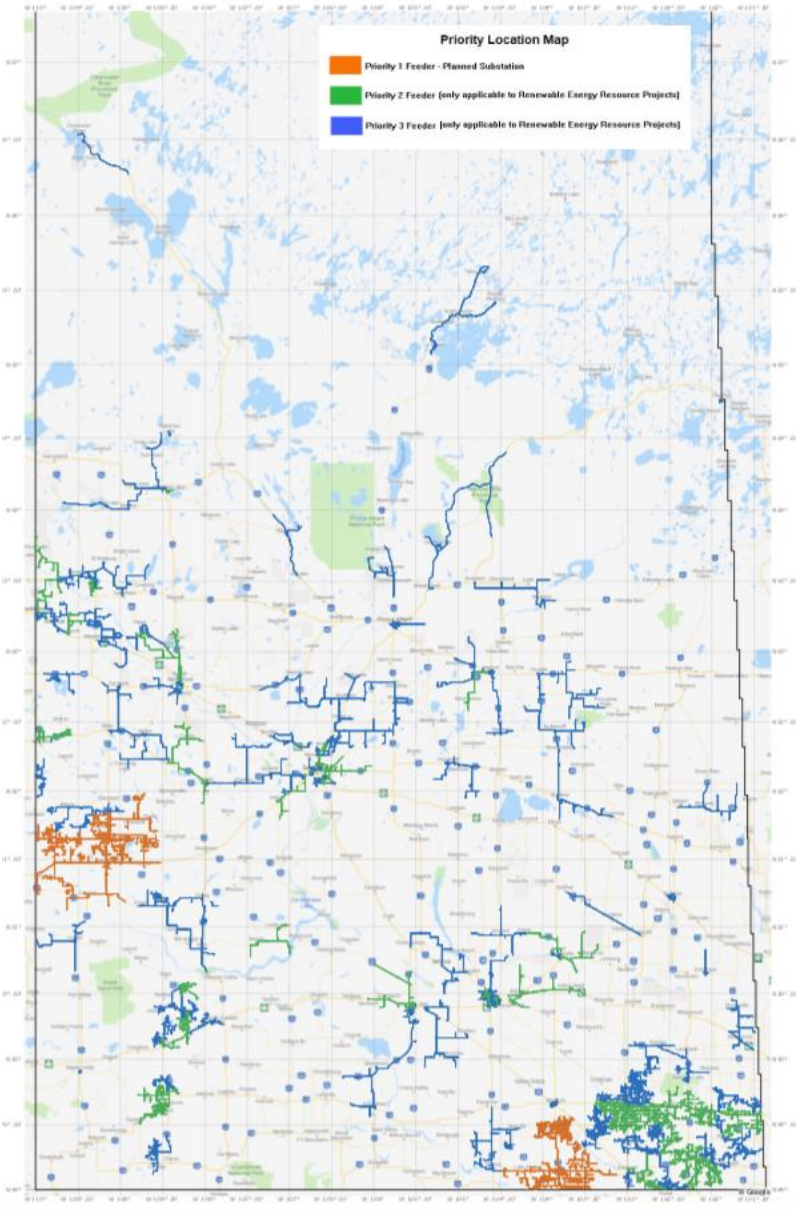
Feeders shown in green are Priority 2 Feeders (only applicable to Renewable Energy Resource Projects).

Feeders shown in blue are Priority 3 Feeders (only applicable to Renewable Energy Resource Projects).

Applications connecting to any feeder not shown on the Map may still be considered as detailed in the Power Generation Partner Program Guidelines (July 2019).

DISCLAIMER: This map is FOR INFORMATION ONLY and may not be fully accurate.

All applicants are required to request and attend a pre-application meeting with SaskPower to explore the priority level of the feeder(s) available in the area of the Applicant's proposed Project.


Priority Location Map
Priority 1 Feeder - Planned Substation
Priority 2 Feeder (only applicable to Renewable Energy Resource Projects)
Priority 3 Feeder (only applicable to Renewable Energy Resource Projects)